

Some remarkable new species of Tachinidae (Diptera) from Japan and the Indo-Australian Region

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Abstract Eighteen new species of Tachinidae are described from Japan and the Indo-Australian Region: *Trixella nox* from Nepal; *Actinochaetopteryx setifacies* from Sulawesi, *A. proclinata* from Estate, and *A. argentifera* from New Guinea; *Phylomya formosana* from Taiwan, *P. humilis* and *P. japonica* from Japan; *Leptothelaira latistriata* from Nepal; *Feriola angustifrons* from Taiwan; *Campylocheta magnicauda* from Taiwan; *Elfriedella flavipilosa* from Nepal; *Takanomyia frontalis*, *T. basalis*, *T. rava*, *T. antennalis* and *T. takagii* from Nepal; *Frontina femorata* and *F. tricolor* from Japan. Keys to the known species of *Leptothelaira*, *Feriola*, *Elfriedella* and *Takanomyia* and to the Japanese species of *Phylomya* and *Frontina* are provided.

Introduction

Since the middle 1940's to the late 1970's MESNIL described many genera and species of Tachinidae from Japan and the Oriental Region in separate papers (eg., 1953, 1957, 1967, 1970) and in his revisional work on the Palearctic Tachinidae of "Die Fliegen" (1944-1975): in "Die Fliegen" they are included in keys to genera or species, and some of them described in earlier papers are redescribed in detail. Recently CROSSKEY (1976) published a taxonomic conspectus of the Oriental Tachinidae, in which he reviewed many genera and species of early authors and provided keys to supraspecific taxa and taxonomic and host catalogs. It has now become possible for us to identify most genera and many species of Oriental tachinids with the aid of their works.

In recent years I have had chances to examine a number of Indo-Australian tachinid specimens as well as Japanese ones and found that there still remain many species undescribed. In this paper 18 new species are described from these areas: *Trixella nox*, *Leptothelaira latistriata*^{1,2)}, *Elfriedella flavipilosa*, *Takanomyia frontalis*, *T. basalis*, *T. rava*¹⁾, *T. antennalis*¹⁾, and *T. takagii* from Nepal; *Phylomya formosana*³⁾, *Feriola*

1) Results of Kyushu University Scientific Expedition to the Nepal Himalaya, Diptera 9.

2) Research Trips for Agricultural and Forest Insects in Subcontinents of India [Grant-in-Aid for Overseas Scientific Survey, Ministry of Education, Japanese Government, 1983, No. 58041001], Scientific Report No. 31.

3) Partly supported by Grant-in-Aid for Overseas Scientific Survey from Ministry of Education, Science and Culture, Japan in 1973, 1978, 1985.

*angustifrons*³⁾, and *Campylocheta magnicauda* from Taiwan, China; *Phyllomya humilis*, *P. japonica*, *Frontina femorata* and *F. tricolor* from Japan; *Actinochaetopteryx setifacies*³⁾ from Sulawesi, Indonesia; *A. argentifera*³⁾ from New Guinea, PNG; *A. proclinata*³⁾ from Efate, Vanuatu. Most of them are very characteristic and easily distinguished from the known species as discussed under each species. Keys to species are provided for most genera, with which some difficult species may also be distinguished.

Material and Methods

Material has been studied from the following collections: Bernice P. Bishop Museum, Honolulu (BPBM); Biological Laboratory, College of General Education, Kyushu University, Fukuoka (BLKU); Canadian National Collection, Ottawa (CNC); Entomological Institute, Hokkaido University, Sapporo (EIHU); Entomological Laboratory, University of Osaka Prefecture, Sakai (ELUO); United States National Museum, Washington, D.C. (USNM); Zoological Museum of the University, Helsinki (ZMH). Holotypes and paratypes of the new species described below will be deposited in BPBM, BLKU, EIHU, ELUO, Kitakyushu Meseum of Natural History, Kitakyusyu (KMNH), and National Science Museum, Natural History, Tokyo (NSM).

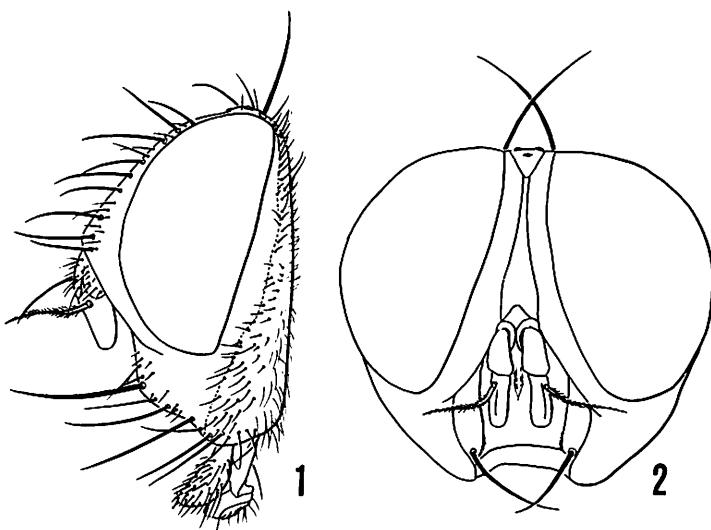
Measurements were made in a similar manner to SHIMA (1984) and abbreviations of the chaetotaxy of the thorax and legs followed those by CROSSKEY (1976).

Descriptions

Trixella nox sp. nov.

(Figs. 1-6)

♂. Head densely whitish pollinose on parafrontal and parafacial, slightly yellowish on face and gena, grayish white pollinose on occiput; interfrontal area brown; antenna reddish yellow; arista and palpus yellow. Vertex 0.18-0.2 of head width; interfrontal area strongly widened anteriorly, slightly wider than parafrontal at middle; parafacial narrowed below, about 3/4 as wide as 3rd antennal segment at middle height; gena 0.35-0.4 of eye height; face about 3/4 as wide as high at the level of vibrissae; facial carina weakly developed on upper 1/2 of face. Inner vertical setae decussate, about 1/2 of eye height; outer vertical seta absent; ocellar seta about 2/3 as long as inner vertical seta; prevertical and proclinate orbital setae absent; parafrontal with several fine hairs along 8-10 frontal setae; lowest frontal seta nearly level with base of 1st antennal segment; parafacial bare; vibrissa nearly level with lower margin of face; upper occiput with 1-2 irregular rows of fine black hairs. Antenna falling short of lower margin of face by about length of 2nd segment; 2nd segment with a long seta which is slightly shorter than arista; 3rd segment 2.2-2.5× as long as 2nd. Arista short plumose, including plumosity at most 2/3 as wide as 3rd antennal



Figs. 1-2. *Trixella nox*: 1, male head in profile; 2, same in frontal view (most hairs omitted).

segment, slightly longer than 2nd and 3rd antennal segments together; 2nd segment as long as wide; 3rd segment thickened on basal 1/4. Palpus broad, about 1.5× as wide as 3rd antennal segment, subequal in length to 2nd and 3rd antennal segments together, with dense short hairs. Proboscis short, at most as long as 3rd antennal segment; labella small.

Thorax dark brown in ground color, humeral callus, anterior portion of mesopleuron, intra-alar region of scutum and central portion of scutellum sometimes pale yellowish, thinly grayish white pollinose; dorsum with 3 very broad longitudinal vittae, inner vitta sometimes separated by a broad median pollinose stripe on presutural region in posterior view. 2 humerals; 0+1 *acr*; 2+3 *dc*; 0+2 *ia*; 2 *sa*; 2 *spl*; pteropleural seta strong; mediotergite bare; basal scutellar seta slightly longer than subapical seta, about 1.5× as long as scutellum; apical scutellar seta about 1.5× as long as scutellum; lateral scutellar seta absent; preapical scutellar seta subequal in length to scutellum.

Wing hyaline; tegula yellowish, basicosta pale brownish yellow; calypter pale brownish. Second costal sector haired below, about 1/2 as long as 3rd; vein R_{4+5} with several fine hairs confined to its basal node; vein M_1 gently curved, bend of vein M_1 about equidistant between discal crossvein and wing margin.

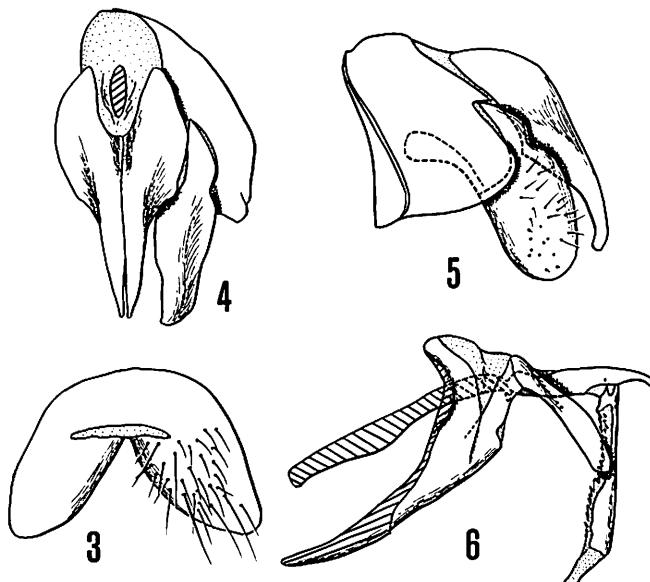
Legs including tarsi yellow. Fore tibia with 2 *p* setae; mid tibia with 1 *ad* and 2 *pd* setae, without *v* seta; hind tibia with 2 preapical *d* setae. Claws and pulvilli very long.

Abdomen broadly reddish yellow in ground color; mid dorsal portion of syntergum 1+2 to 5th tergum longitudinally dark brown, dark longitudinal band

expanded posteriorly on each tergum and posterior portion of 4th tergum and entire 5th sometimes dark brown; venter entirely yellowish, sterna weakly darkened; very thin grayish white pollinosity recognizable on dorsum when seen from behind; narrow median longitudinal vitta present. Syntergum 1+2 without median marginal seta, with 1 lateral marginal seta; 3rd tergum with 1–2 lateral discal, 2 median marginal and 2–4 lateral marginal setae; 4th tergum with 2–3 lateral discal and a row of marginal setae; 5th tergum with several lateral discal and a row of marginal setae.

♂ genitalia: 5th sternum short and wide, posterior lobes widely separated from each other; 6th tergum rather long, entire, with many fine hairs; 6th sternum nearly symmetrical; hypandrium long, dorsal arms widely separated from each other; cerci in dorsal view broad at basal 1/2, apical portions narrowly separated from each other, in lateral view weakly curved ventrally on apical 1/4; surstyli in lateral view broad, rounded apically; epiphallus rather short, distiphallus longer than basiphallus, with strong spinules on ventral portion.

♀. Differing from ♂ as follows: Vertex about 0.33 of head width; interfrontal area slightly narrower than parafrontal at middle; inner vertical seta stronger than in ♂; 1 outwardly directed prevertical seta present, about 1/2 as long as inner vertical seta; 2 proclinate orbital setae subequal in length to each other and slightly shorter



Figs. 3–6. *Trixella nox*: 3, ♂ 5th abdominal sternum in ventral view; 4 epandrium, cerci and surstyli in dorsal view; 5, same in lateral view; 6, hypandrium, pre- and postgonite and aedeagus in lateral view.

than inner vertical seta; mid tibia with 2 *ad* and 1 *v* setae; claws and pulvilli short; abdomen broad, dorsum brownish on posterior portion of each tergum.

Body length, 8.3–11.9 mm; wing length, 8–11.3 mm.

Distribution. Nepal.

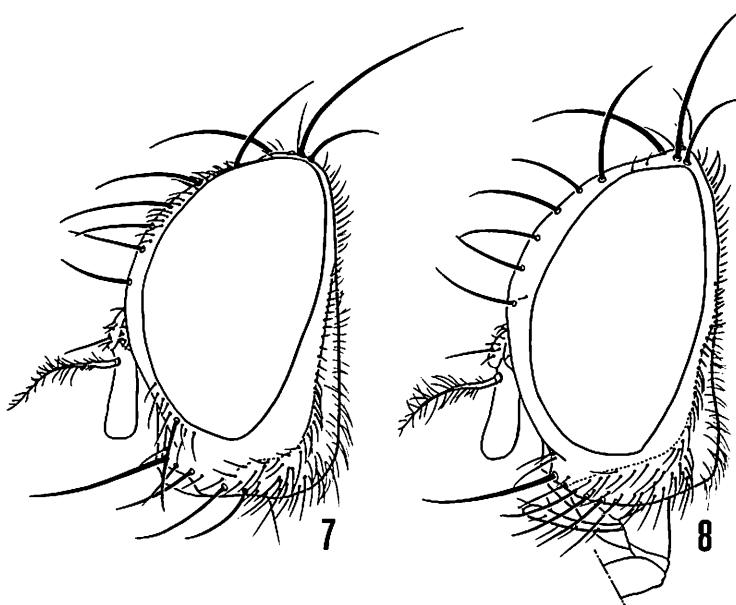
Holotype, ♂, NEPAL, Salpa La (2900 m), 25. vii. 1981, J. EMOTO (light trap)(BLKU).

Paratypes: NEPAL: 6♂1♀, same data as holotype (4♂1♀ in BLKU; 2♂ in KMNHIR100, 292–293); 1♂, Phulchoki (2762 m), 18–21. ix. 1987, M. LIMBU (BLKU).

Remarks. The genus *Trixella* was erected by MESNIL (1980) in his key to genera of Dexiinae (type species: *Dexiotrix pubiseta* MESNIL, 1967, from Japan, holotype ♀ in CNC, examined) and HERTING (1984) included 2 other species in the genus from western China. This genus closely resembles *Dexiotrix* VILLENEUVE, 1936 (type species: *Dexiotrix longipennis* VILLENEUVE, 1936, from Szechwan (=Sichuan), China, lectotype ♀ in USNM, examined), but MESNIL (l.c.) distinguished it from the latter by the wider face, weak facial carina, pubescent arista and dark tegula and basicosta. The new species described above is rather intermediate in its characters between these two genera, since it has wide face and weak facial carina but rather short plumose arista and pale tegula and basicosta. It is likely that *Trixella* is at most subgenerically different from *Dexiotrix*, but it is not the purpose of this paper to discuss about the problem. This species may be easily distinguished from others by 2+3 *dc* setae, undeveloped outer vertical seta in both sexes, only 1 *ad* and 0 *v* seta on mid tibia in ♂, yellowish tegula and pale brownish yellow basicosta, and only several hairs confined to basal node of wing vein R₄₊₅.

***Actinochaetopteryx setifacies* sp. nov.**
(Figs. 7, 9–12)

♂. Head whitish pollinose, parafrontal pale yellowish gray; vertex reddish brown in ground color; interfrontal area brown; antenna and arista reddish yellow; palpus reddish yellow. Vertex about 0.35 of head width; interfrontal area weakly widened anteriorly, about 2× as wide as parafrontal at middle; parafacial nearly parallel-sided, slightly narrower than 3rd antennal segment; face weakly concave, facial carina absent, lower margin well produced forward; gena about 1/4 of eye height. Inner vertical seta about 4/5 of eye height; outer vertical seta about 1/2 of inner one; ocellar seta about 3/4 of inner vertical seta; postocellar and postvertical setae short and fine; 1 reclinate prevertical seta slightly shorter than ocellar seta; 5 frontal setae, lowest seta nearly level with middle of lunula; parafacial with 2–3 rows of short hairs which do not descend below lowest frontal seta; parafacial with 1 strong and several fine and rather long hairs on lower portion; gena with sparse short hairs on lower 1/2; occiput without black hairs. Antenna with both 1st segments



Figs. 7–8. Male head in profile: 7, *Actinochaetopteryx setifacies* (holotype); 8, *A. argentifera*.

rather well separated from each other, very short; 2nd segment with a long and several short hairs; 3rd segment about 3× as long as 2nd. Arista including plumosity as wide as 3rd antennal segment. Palpus nearly parallel-sided, subequal in length to 3rd antennal segment.

Thorax black in ground color, in posterior view dorsum pale yellowish white pollinose on humeral callus, notopleuron, narrow posterior portion of presutural region along transverse suture, and posterior 1/3 of postsutural region; pleura whitish pollinose. Dorsum with dense and short hairs; 3 humerals; 2+2 *acr*; 2+3 *dc*; 1+3 *ia*; *pra* present; 1 strong *sa*; 1+1 *stpl*; pteropleural seta short; mediotergite bare; basal scutellar seta slightly longer than scutellum, 1/2 as long as subapical seta and 2/3 apical seta.

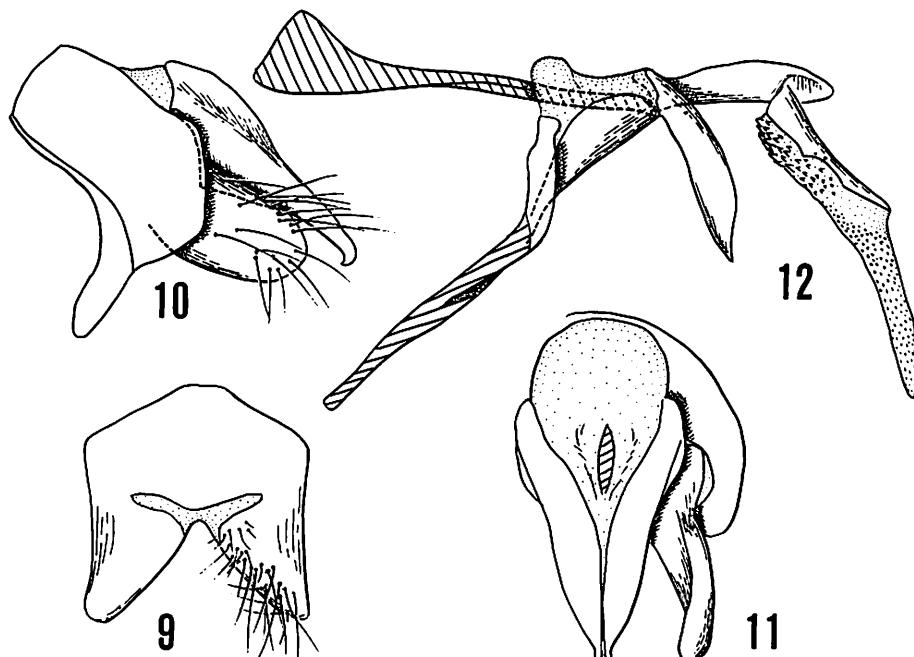
Wing hyaline, weakly tinged with pale brown on anterior portion between costa and vein R_{2+3} ; tegula and basicosta black; calypter white. Second costal sector sparsely haired below, about 1/5 as long as 3rd; vein R_1 setulose dorsally on its entire length; vein R_{4+5} setulose dorsally from base to level of discal crossvein; vein M_3 setulose dorsally from basal crossvein to level of midway to $r-m$ crossvein; vein M_1 from discal crossvein to its bend about 1.5× as long as that from bend to apex of M_1 , about 3× distance between the bend and wing margin; discal crossvein attached to vein M_1 slightly closer to $r-m$ crossvein than to its bend; last section of vein M_3 slightly longer than discal crossvein.

Legs black. Fore tibia with 1 *p* seta; mid tibia with 1 *ad*, 2 *pd* and 1 *v* setae; hind tibia with 3 preapical *d* setae, of which *pd* seta is about 1/3 as long as mid dorsal one. Claws and pulvilli very short, distinctly shorter than 5th tarsomere.

Abdomen shining black in ground color, pale yellowish white pollinose on anterior 1/5 of 3rd and 4th terga and anterior 1/4 of 5th tergum. Hairs fine dense and recumbent; 2nd tergum with 1 lateral marginal seta; 3rd tergum with 2 median marginal and 1 lateral marginal setae; 4th and 5th terga each with a row of marginal setae.

δ genitalia: 5th sternum slightly longer than wide, posterior lobe occupying posterior 2/5 of the sternum, with dense hairs; 6th tergum entire, slightly longer than synsternum 7+8, without hairs; 6th sternum very short, fused with synsternum 7+8 on left side and narrowly separated from it on right side; hypandrium long; cerci in dorsal view long triangular in shape, in lateral view weakly curved ventrally at apex; surstyli short and broad, rounded apically in lateral view, with many long hairs; distiphallus with elongate membranous apical portion, ventroproximal membrane with strong spinules and apical portion with minute ones.

φ . Differing from δ as follows: Parafrontal whitish pollinose; vertex about 0.39 of head width; interfrontal area about 1.5 \times as wide as parafrontal at middle;



Figs. 9–12. *Actinochaetopteryx setifacies* (holotype): 9, δ 5th abdominal sternum in ventral view; 10, epandrium, cerci and surstyli in lateral view; 11, same in dorsal view; 12, hypandrium, pre- and postgonite and aedeagus in lateral view.

parafacial about 1.5× as wide as 3rd antennal segment, with 1 long and a few very short fine hairs; gena wider, slightly more than 1/3 of eye height; head setae stronger than in ♂; parafrontal only with a few very short and fine hairs; 2 subequally long proclinate orbital setae slightly longer than ocellar seta; wing more brownish tinged; 5th tarsomeres dilated and flattened, subequal in length to 3rd and 4th tarsomeres together in fore leg; 3rd abdominal tergum with a row of 6 marginal setae.

Body length, 4.7–5.7 mm; wing length, 3.9–5 mm.

Distribution. Indonesia (Sulawesi).

Holotype ♂, INDONESIA, Sulawesi, Noongan, 1200 m, 50 km S of Menado, 2–10. xii. 1973, H. SHIMA (NSM).

Paratype: INDONESIA: 1♀, same data as holotype (BLKU).

Remarks. The genus *Actinochaetopteryx* was erected by TOWNSEND (1927) for a Formosan species, *actifera*, and has been known from some 11 species from Japan and the Indo-Australian Region (DEAR & CROSSKEY, 1982; MALLOCH, 1935; MESNIL, 1970). A key is provided for Indo-Australian species by DEAR & CROSSKEY (l.c.). The present new species is peculiar among members of this genus in its haired lower parafacial, 1+1 *stpl* setae and absence of proclinate orbital setae in male, but it is well assignable to this genus by many other features, such as the semicircular head, flattened occiput, plumose arista, 3 pairs of scutellar setae, of which subapical setae are strong and widely separated from each other, and wing vein R_{4+5} setulose well beyond r-m crossvein.

Actinochaetopteryx proclinata sp. nov.

♂. Closely resembling the preceding species, but differing as follows: Head pale grayish white pollinose; vertex about 0.37 of head width; interfrontal area only slightly wider than parafrontal at middle; postocellar and postvertical setae rather long; parafrontal almost bare; 2 strong and subequally long proclinate orbital setae, an additional fine seta present behind posterior seta; lower parafacial with 4 rather long and strong hairs; lower margin of face only weakly produced forward; thorax more extensively pollinose on dorsum than in the preceding species, pollinosity on postsutural region extending to posterior 1/2, entire scutellum pale grayish, somewhat pale yellowish, white pollinose; distal 1/5 of wing vein R_1 without setulae; vein M_3 setulose dorsally from base of basal cell to level of nearly midway to discal crossvein; discal crossvein attached to vein M_1 about equidistant between r-m crossvein and its bend; abdomen brownish in ground color, grayish white pollinose on anterior 1/3 of 3rd and 4th terga and 2/5 of 5th tergum.

♀. Unknown.

Body length, ca. 5 mm; wing length, ca 3.6 mm.

Distribution. Vanuatu (Efate).

Holotype, ♂, New Hebrides [=VANUATU], Efate I., 10 km NW of Vila, 13–

14. ii. 1978, H. SHIMA (BPBM).

Remarks. This species closely resembles *A. setifacies*, but may be distinguished from it by many strong hairs on lower parafacial, strong proclinate orbital setae in ♂ and vein M_3 setulose from base of basal cell beyond basal crossvein.

***Actinochaetopteryx argentifera* sp. nov.**

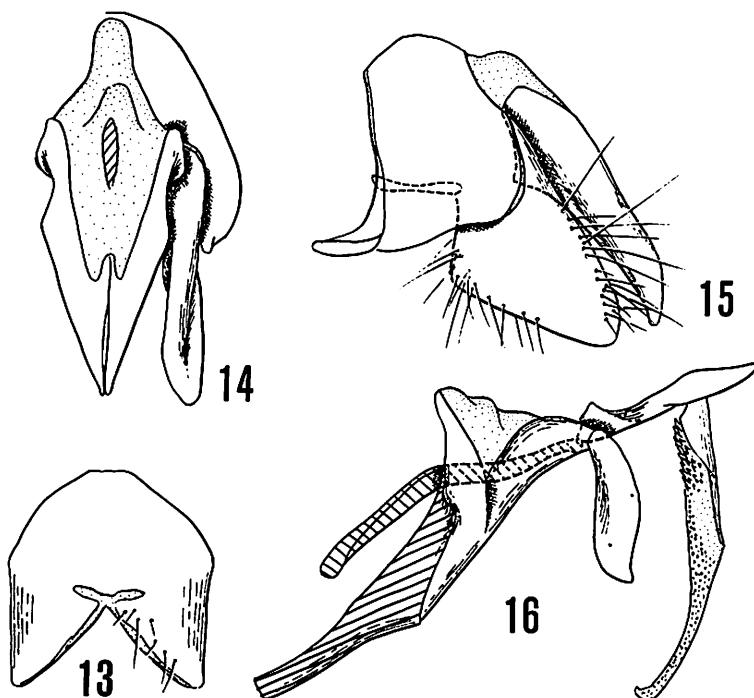
(Figs. 8, 13–16)

♂. Head entirely and densely silvery white pollinose; interfrontal area brown, long triangular in shape, obliterated on upper 1/3 of frons in front of ocellar triangle; antenna and arista dark brown; palpus reddish brown. Vertex 0.34–0.36 of head width; interfrontal area slightly narrower than parafrontal at level of base of antenna; parafacial slightly narrowed below, 1.2–1.4× as wide as 3rd antennal segment at middle height; face flat, lower portion only slightly produced forward; gena 0.23–0.24 of eye height, with rather dense hairs on lower 1/2. Inner vertical seta about 1/2 of eye height; outer vertical seta 1/2–3/4 of inner one; postocellar seta rather long, about 1/2 as long as ocellar seta; ocellar seta slightly shorter than inner vertical seta; 1 reclinate prevertical seta slightly shorter than ocellar seta; proclinate orbital seta absent; 5–6 frontal setae, lowest seta nearly level with middle of lunula; parafrontal and parafacial bare, sometimes 1–2 very short fine hairs present behind prevertical seta; occiput without black hairs. First antennal segment very short, both separated from each other; 2nd segment with a long and several fine hairs, long hair slightly longer than 2nd segment; 3rd segment about 3.5× as long as 2nd. Arista including plumosity subequal in width to 3rd antennal segment. Palpus slightly dilated apically, slightly shorter than 3rd antennal segment.

Thorax black in ground color, densely silvery white pollinose on dorsum, rather thinly so on pleura. Hairs almost absent on dorsum, except on anterior portion of presutural region, a few rather strong hairs sometimes present in rows of *acr* and *dc* setae; scutellum with rather sparse hairs on posterior 2/3; 3 humerals; 3+4 *acr*; 2+3 *dc*; 1+3 *ia*; *pra* present; 2 *sa*, anterior seta very strong; 2+1 *stpl*; mediotergite bare; basal scutellar seta about 1.5× as long as scutellum, about 3/4 as long as apical seta and 1/2 subapical.

Wing weakly brownish tinged on anterodistal 1/2, especially along vein R_{2+3} ; tegula and basicosta black; calypter white. Second costal sector bare below, 1/4–2/9 as long as 3rd; vein R_1 setulose dorsally from base to apical 1/5; vein R_{4+5} setulose dorsally from base to r-m crossvein; vein M_3 dorsally with a few setulae behind basal crossvein, bare in basal cell; discal crossvein attached to vein M_1 slightly closer to bend of M_1 than to r-m crossvein; last section of vein M_3 subequal in length to discal crossvein.

Legs black. Fore tibia with 1 *p* seta; mid tibia with 1 *ad*, 2 *pd* and 1 *v* setae; hind tibia with 3 preapical *d* setae, of which *pd* seta is about 1/3 as long as mid dorsal seta;



Figs. 13–16. *Actinochaetopteryx argentifera*: 13, ♂ 5th abdominal sternum in ventral view; 14, epandrium, cerci and surstyli in dorsal view; 15, same in lateral view; 16, hypandrium, pre- and postgonite and aedeagus in lateral view.

claws and pulvilli very short.

Abdomen black in ground color, densely and entirely silvery white pollinose in frontal view, in posterior view the pollinosity dense and distinct on anterior portion of each tergum. Hairs rather sparse, long and recumbent; 2nd tergum with 1 lateral marginal seta; 3rd tergum with 2 median marginal and 1 lateral marginal setae; 4th and 5th each with a row of 6 marginal setae.

♂ genitalia: 5th sternum with posterior lobe occupying posterior 1/3 of the sternum, with sparse hairs; 6th tergum longer than synsternum 7+8, both almost bare; postgonite wider than in *setifacies*; cerci in dorsal view widely separated from each other at base and convergent apically, in lateral view nearly straight; surstyli in lateral view wide, triangular in shape, with dense long hairs on dorsal and ventral portions.

♀. Unknown.

Body length, 4.5–4.7 mm; wing length, 4–4.2 mm.

Distribution. Papua New Guinea (New Guinea).

Holotype ♂, PAPUA NEW GUINEA, Wau, 23–31. xii. 1973, H. SHIMA (BPBM)

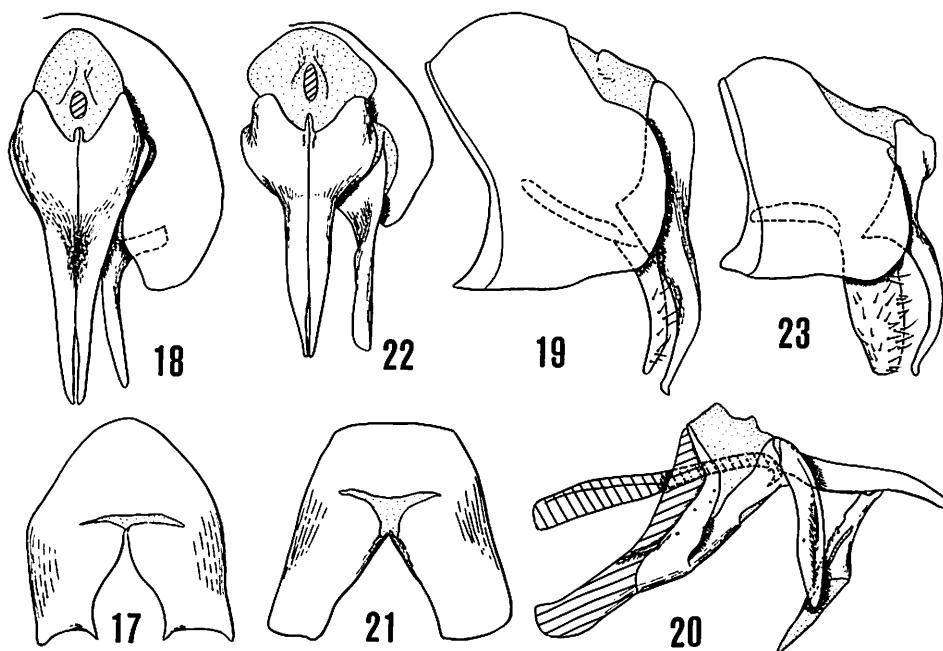
Paratypes: PAPUA NEW GUINEA: *New Guinea*- 2♂♂, same data as holotype (BLKU, KMNHIR100, 294).

Remarks. Although *Actinochaetopteryx* species has hitherto been undescribed from New Guinea, there occur at least 5 species there. Among these species the present new species is very distinctive in its densely and entirely silvery white pollinose body and almost bare thoracic dorsum except for strong setae.

***Phyllomya formosana* sp. nov.**

(Figs. 17–20)

♂. Head densely whitish pollinose, upper parafrontal dark grayish, shining black near vertex; occiput grayish white pollinose; antenna and arista blackish brown; palpus dark brown. Vertex 0.28–0.31 of head width; interfrontal area widened anteriorly, about 2× as wide as parafrontal at middle; parafacial weakly narrowed below, subequal in width to 3rd antennal segment at middle height; gena 0.27–0.3 of eye height. Inner vertical seta subequal to or slightly less than eye height; outer vertical seta absent; ocellar seta fine, about 1/2 as long as inner vertical seta; 1–2 outwardly and weakly forwardly directed prevertical setae, if 2 setae



Figs. 17–20. *Phyllomya formosana*: Figs. 21–23. *P. nobilis*: 17, 21, ♂ 5th abdominal sternum in ventral view; 18, 22, epandrium, cerci and surstyli in dorsal view; 19, 23, same in lateral view; 20, hypandrium, pre- and postgonite and aedeagus in lateral view.

present, then posterior seta fine; 2 proclinate orbital setae, anterior seta slightly longer than posterior one and subequal to prevertical seta; lowest frontal seta nearly level with base of antenna; parafacial with 1–2 rows of rather sparse black hairs which descend slightly above level of apex of antenna. Antenna falling short of lower margin of face by about 1/2 length of 2nd antennal segment; 2nd segment with a long hair that is slightly longer than 2nd antennal segment; 3rd segment 3.2–3.5× as long as 2nd. Arista short plumose, including plumosity about 1/2 as wide as 3rd antennal segment. Palpus slightly shorter than 3rd antennal segment.

Thorax rather thinly grayish white pollinose; dorsum with 3 broad longitudinal vittae on presutural region, broadly blackish on postsutural region; scutellum black. 1+0 *acr*; 2+3 *dc*; 0+1–2 *ia*, if 2 *post ia* setae present, then anterior seta fine; *pra* fine but distinct; 1+1 *stpl*; basal scutellar seta about 2× as long as scutellum and 1.5× apical seta; subapical scutellar seta about 3× as long as scutellum.

Wing hyaline, evenly tinged with pale brown. Vein M_1 from discal crossvein to its bend about 4/5 as long as that from the bend to apex of M_1 , and about 1.5× distance between the bend and wing margin. Costigial seta 2/3–3/4 as long as basal scutellar seta.

Legs with black hairs; mid femur with a strong submedian seta on anterior surface; fore tibia with 2 *p* setae; mid tibia with 2 *ad*, 2 *pd* and 1 *v* setae; hind tibia with 3 preapical *d* setae. Claws and pulvilli very long.

Abdomen densely tessellate white pollinose on dorsum of anterior 2/5–3/7 of each 3rd to 5th terga; venter rather thinly tessellate white pollinose, posterior portion broadly black. Syntergum 1+2 with 2 median discal, 1–3 irregular lateral discal and a row of marginal setae; 3rd to 5th terga each with 2 median discal and a row of marginal setae, lateral discal setae undeveloped.

♂ genitalia: Cerci in dorsal view evenly narrowed to apex, narrowly separated from each other on apical 1/4, in lateral view weakly curved ventrally; surstyli slender, weakly curved ventrally; epiphallus long.

♀. Differing from ♂ as follows: Vertex 0.31–0.33 of head width; parafacial slightly wider than 3rd antennal segment at middle height; gena wide, 0.34–0.38 of eye height; *pra* seta strong; mid tibia with 3 *ad* setae; claws and pulvilli short.

Body length, 5.1–8.5 mm; wing length, 4.4–7.3 mm.

Distribution. China (Taiwan).

Holotype ♂, CHINA, Taiwan, Chiai Hsien, Alishan (2300 m), 5. vi. 1970, H. KURAHASHI (BLKU).

Paratypes: CHINA: Taiwan- 1 ♂, Alishan, 3. vi. 1972, H. M. LIN; 1 ♂, same data as holotype, except date 4. vi. 1970; 1 ♂, same as preceding, except collector K. NISHIDA (all in BLKU); 1 ♂, same data as holotype; 1 ♂, same as preceding, except collector K. NISHIDA (all in KMNHIR100, 295–296); 2 ♂♂2 ♀♀, Alishan (2400 m), 12–16. vi. 1965, T. C. MAA & K. S. LIN (BPBM); 1 ♂, Chiai Hsien, Tatachiaampu —Paiyunshanchuan, 6. vii. 1985, H. SHIMA; 1 ♂, Nantou Hsien, Meifeng—Tsuiseng

(2200–2300 m), 25. iv. 1981, K. OHARA (all in BLKU).

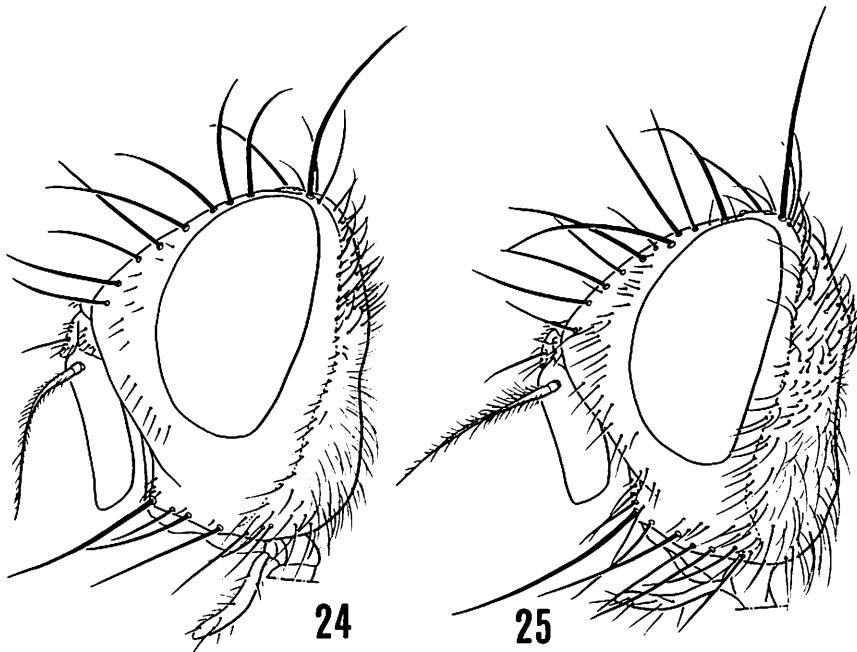
Remarks. In MESNIL's key to species of *Phyllomya* in "Die Fliegen" (1975) this species runs down to *P. elegans* VILLENEUVE from Szechwan (=Sichuan), China (lectotype ♀ in USNM, paralectotype ♂ in CNC, both examined). The present new species may be easily distinguished from it by the narrow frons and gena and 2+3 *dc* setae. This species also resembles *P. volvulus* (FABRICIUS) from Europe, but is different from it in having 1+1 *stpl* setae and undeveloped lateral discal setae on the 3rd to 5th abdominal terga.

Phyllomya humilis sp. nov.

(Figs. 24, 26–29)

Closely resembling *P. takanoi* MESNIL, but differing as follows:

♂. Vertex wider, 0.26–0.29 of head width; upper parafrontal broadly shining black; parafrontal and parafacial with black hairs; parafacial weakly narrowed below, subequal in width to or slightly wider than 3rd antennal segment at middle height; gena wide, 0.35–0.37 of eye height, with sparse black hairs on lower portion; palpus usually reddish yellow, at most reddish brown; all thoracic hairs black; basal scutellar seta fine but distinct, subequal in length to scutellum; mid femur without submedian seta on anterior surface (MESNIL (1975) in "Die Fliegen" stated that *takanoi* lacks this



Figs. 24–25. Male head in profile: 24, *Phyllomya humilis*; 25, *P. japonica*.

seta, but it normally seems to have distinct submedian setae on anterior surface; the type specimen of *takanoi* has such the setae on right femur); mid tibia with only 1 *ad* seta. ♂ genitalia: Cerci in dorsal view rather strongly narrowed at basal 2/7, apical portion narrowly separated from each other, in lateral view weakly curved on apical 2/3; surstyli in lateral view narrow, nearly straight; epiphallus rather long.

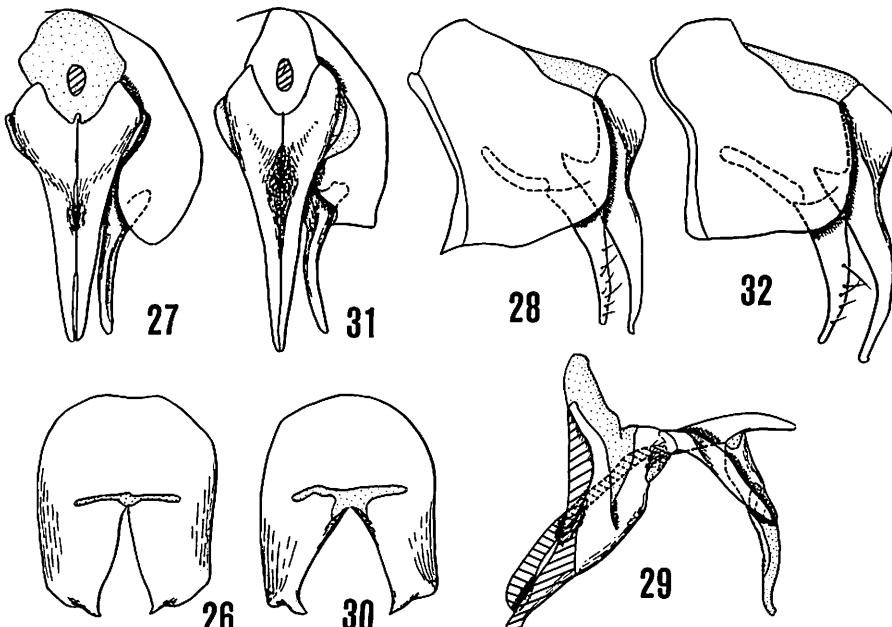
♀. Differing from ♂ as follows: 1–2 proclinate orbital setae; parafacial about 1.5× as wide as 3rd antennal segment at middle height; mid tibia with 2 *ad* setae; claws and pulvilli very short; abdomen shining black, anterior 1/3–1/4 of each 3rd and 4th terga very thinly grayish white pollinose on dorsum.

Body length, 5.6–7.7 mm; wing length, 4.4–6.2 mm.

Distribution. Japan (Shikoku, Kyushu).

Holotype ♂, JAPAN, Kyushu, Fukuoka, Mt. Inunaki, 5. v. 1966, H. SHIMA (BLKU).

Paratypes: JAPAN: Shikoku- 2 ♀♀, Ehime, Omogokei, 26. v. 1967, A. NAKANISHI & H. SHIMA (BLKU); Kyushu- 3 ♂♂, Tsushima, Sasuna, 26. v. 1968, M. HONDA & H. SHIMA; 9 ♂♂ 10 ♀♀, same locality as holotype, 24. iv. 1967, 30. iv. 1967, 3. v. 1969, 5. v. 1966, 15. v. 1967, 26. v. 1966, 27. v. 1981, H. SHIMA, A. NAKANISHI & S. MIYAMOTO (7 ♂♂ 8 ♀♀ in BLKU, 2 ♂♂ 2 ♀♀ in KMNHIR100, 297–300); 1 ♀, Fukuoka, Noguchi, 28. v. 1967, S. MIYAMOTO; 1 ♂, Fukuoka, Mt. Wakasugi, 12. v. 1969, M.



Figs. 26–29. *Phylomya humilis*: Figs. 30–32. *P. takanoi*: 26, 30, ♂ 5th abdominal sternum in ventral view; 27, 31, epandrium, cerci and surstyli in dorsal view; 28, 32, same in lateral view; 29, hypandrium, pre- and postgonite and aedeagus in lateral view.

HONDA; 1♂2♀♀, Kumamoto, Naidaijin (560–800 m), 8–10. v. 1967, H. SHIMA & A. NAKANISHI; 2♂2♀♀, Kagoshima, Iso Park, 18. iv. 1967, H. SHIMA; 1♀, Kagoshima, Hiyamizu, 20. v. 1962, A. NAGATOMI (all in BLKU).

Phyllomya japonica sp. nov.

(Figs. 25, 33–36)

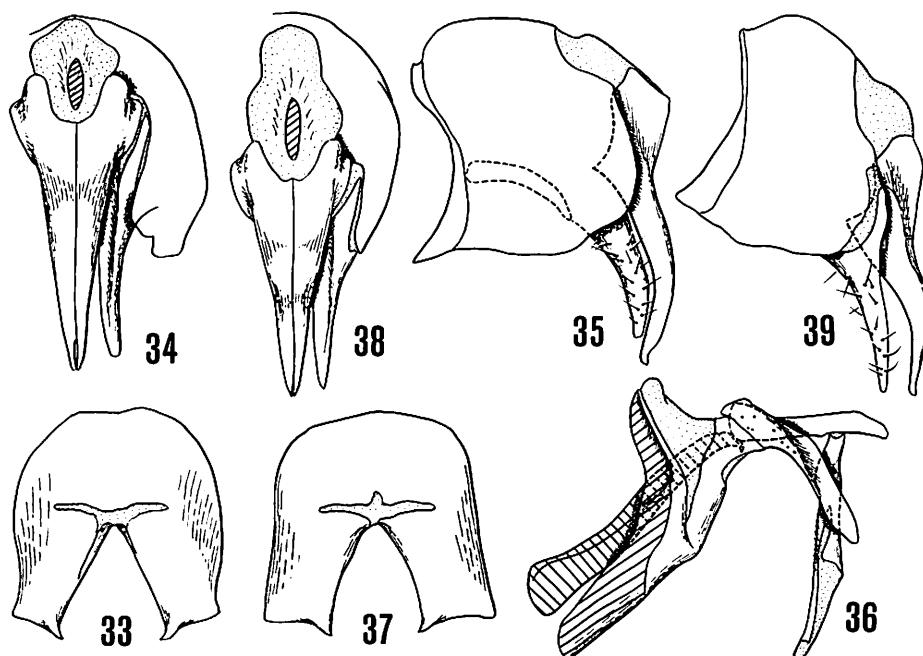
Very closely resembling *P. volvulus* (FABRICIUS), but differing as follows:

♂. Vertex narrower, 0.25–0.27 of head width; outer vertical seta sometimes fine; gena narrower, 0.38–0.42 of eye height; claws and pulvilli very long, longer than 5th tarsomere. ♂ genitalia: Cerci in dorsal view evenly narrowed to apex, in lateral view weakly curved ventrally; surstyli in lateral view rather broad, weakly narrowed to blunt apex; epiphallus rather short.

♀. Differing from ♂ as follows: Vertex 0.29–0.33 of head width; outer vertical seta strong; claws and pulvilli short, shorter than 5th tarsomere; abdomen more thinly whitish pollinose than in ♂.

Body length, 6.5–9.9 mm; wing length, 5.8–7.7 mm.

Distribution. Japan (Honshu).



Figs. 33–36. *Phyllomya japonica*: Figs. 37–39. *P. volvulus*: 33, 37, ♂ 5th abdominal sternum in ventral view; 34, 38, epandrium, cerci and surstyli in dorsal view; 35, 39, same in lateral view; 36, hypandrium, per- and postgonite and aedeagus in lateral view.

Holotype, ♂, JAPAN, Honshu, S. Jpn. Alps, Yamanashi, Okambazawa (1500–2000 m), 25–26. vii. 1986, H. SHIMA (BLKU).

Paratypes: JAPAN: Honshu—4♂3♀, Aomori, Mt. Iwaki, 25. vii. 1983, 23. viii. 1968, 26. viii. 1966, 29. viii. 1971, S. FUKUSHI; 1♀, Saitama, Karisaka, 2. viii. 1973, K. HARA; 1♂, Saitama, Kumotori, 19. viii. 1972, K. HARA (all in BLKU); 4♀, Yamanashi, Kitakoma-gun, Mt. Kitadake (2240 m), 28. viii. 1980, T. Goto (2♀ in BLKU, 1♀ in KMNHIR100, 301); 3♂, same data as holotype (BLKU); 2♂, Hida [=Gifu], Ontake, Nigorigo-onsen, 7, 9. vii. 1969, A. NAGATOMI (BLKU, KMNHIR100, 302); 1♂, Ishikawa, Mt. Hakusan, 30. viii. 1974, K. NISHIDA (BLKU).

Remarks. The genus *Phyllomya* ROBINEAU-DESVOIDY has been known from 15 species in the Holarctic and Oriental Regions (CROSSKEY, 1976; HERTING, 1984; WOOD, 1987). Here are added 2 species of the genus to 3 hitherto known Japanese species and one newly from Taiwan. The 5 Japanese species may be distinguished as follows:

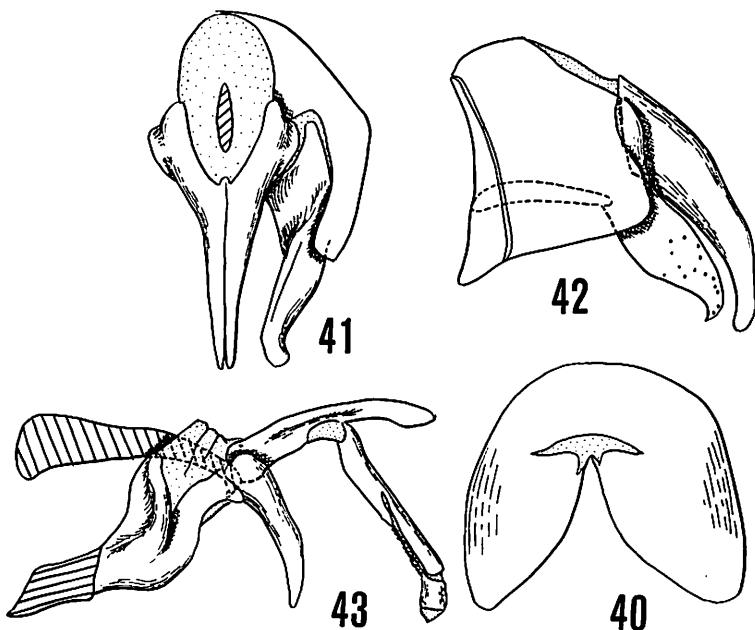
1. 3+3 dc; 2nd antennal segment with a very long seta which is longer than arista; frons very narrow in ♂, eyes conspicuously close together in front of ocellar triangle *aristalis* (holotype ♂ in BLKU, examined): Honshu, Kyushu; Far East USSR
- 2+3 dc; 2nd antennal segment with a long seta at most as long as its own length; frons wide in ♂ 2
2. 2+1 stpl; intermediate abdominal terga with lateral discal setae; 2 post ia setae, anterior seta strong; outer vertical seta developed in ♂; 1–2 proclinate orbital setae in ♂; vertex 0.25–0.27 of head width in ♂, 0.29–0.33 in ♀; gena 0.38–0.42 of eye height *japonica*: Honshu
- 1+1 stpl; intermediated abdominal terga without lateral discal setae; 1 post ia, if 2 setae present, then anterior one very fine; outer vertical seta very fine or absent in ♂; ♂ with or without proclinate orbital setae 3
3. Abdomen shining black, without pollinosity; hind tibia with 2 preapical d setae; wing markedly darkened on anterodistal portion; basal scutellar seta usually absent; claws and pulvilli short; ♂ with 2 proclinate orbital setae; mid tibia with 1 ad seta in ♂, 2 in ♀ *nobilis* (holotype ♀ in CNC, examined): Honshu, Kyushu
- 3rd and 4th abdominal terga whitish pollinose on anterior portion; hind tibia with 3 preapical d setae; wing at most evenly tinged with pale brown; basal scutellar seta present; ♂ claws and pulvilli elongate; ♂ without proclinate orbital seta; mid tibia with 1–3 ad setae 4
4. Parafacial, gena, pleural region of thorax, coxae, trochanters, ventroproximal portions of femora, 1st abdominal sternum and venter of abdominal syntergum 1+2 with whitish hairs; palpus dark brown to black; mid tibia

- with 2 *ad* setae in ♂, 2–3 in ♀
... *takanoi* (holotype ♂ in CNC, examined): Hokkaido, Honshu, Kyushu
- Hairs on head, thorax, legs and abdomen black; palpus reddish yellow or reddish brown; mid tibia with 1 *ad* seta in ♂, 2 in ♀
..... *humilis*: Shikoku, Kyushu

***Leptothelaira latistriata* sp. nov.**

(Figs. 40–43)

♂. Closely resembling *L. meridionalis* MESNIL et SHIMA, but differing as follows: Head densely golden yellowish pollinose on parafrontal and parafacial, upper postorbit densely yellowish; vertex 0.17–0.18 of head width; gena 0.25–0.27 of eye height; inner vertical seta long but fine, directed forward; outer vertical seta absent; postocellar seta fine but long, about 4/5 as long as inner vertical seta; arista including plumosity at most 1.5× as wide as 3rd antennal segment (about 2× in *meridionalis*); thoracic dorsum densely golden yellowish pollinose, 4 broad black longitudinal vittae present on presutural region, inner vitta as wide as or slightly wider than pollinose portion between inner and outer vittae, on postsutural region



Figs. 40–43. *Leptothelaira latistriata*: 40, ♂ 5th abdominal sternum in ventral view; 41, epandrium, cerci and surstyli in dorsal view; 42, same in lateral view; 43, hypandrium, pre- and postgonite and aedeagus in lateral view.

inner vittae fused with each other and forming a broad median stripe. ♂ genitalia: Cerci in dorsal view strongly narrowed from base to basal 1/3, then evenly narrowed to apex, very weakly separated from each other on apical portion, in lateral view weakly curved ventrally; surstyli in dorsal view outwardly curved on apex, in lateral view curved ventrally on apical portion and pointed at tip; postgonite rather short; epiphallus very long.

♀. Unknown.

Body length, 7.3–11 mm; wing length, 7.4–10.6 mm.

Distribution. Nepal.

Holotype, ♂, NEPAL, Chiaksils (2800 m), 20. vii. 1981, J. EMOTO (BLKU).

Paratypes: NEPAL: 2♂♂, same data as holotype (BLKU, KMNHIR100, 303); 1♂, Salpa La (2800–3000 m), 23. vii. 1981, J. EMOTO; 1♂, Topke Gola (3700 m), 27°38'N, 87°35'E, — Thrukpa (2600 m), 27°36'N, 87°36'E, 9. vii. 1972, P. NORBU (all in BLKU); 1♂, Rolwaling Valley, Dongo Kharka — Beding (2800–3000 m), 22–23. viii. 1983, M. SUWA (EIHU).

Remarks. The genus *Leptothelaira* MESNIL et SHIMA is considered to be close to Eriothrixini (SHIMA, 1987) and is characterized by the semicircular head, bare eye, elongate cylindrical abdomen, sclerotized metathorax between hind coxae and abdominal base, only 2 pairs of marginal scutellar setae and plumose arista. This genus has been known from 3 species from Japan, Taiwan and Vietnam (MESNIL & SHIMA, 1979). The fourth species described above is distributed in the westernmost area among members of this genus. These species may be keyed out as follows:

1. Ocellar seta very fine hair-like or absent; ♂ 5th abdominal tergum narrowed posteriorly and forming an elongate tail *longicaudata*
 (holotype ♂ in BLKU, examined): Japan (Hokkaido, Honshu)
- Ocellar seta strong; ♂ abdomen without elongate tail 2
2. Head and thoracic dorsum densely golden yellowish pollinose; thoracic dorsum with broad black longitudinal vittae on presutural region, inner vitta as wide as or wider than pollinose portion between inner and outer vittae; outer vertical seta undeveloped in ♂ *latistriata*: Nepal
- Head and thorax yellowish or yellowish white pollinose; thoracic dorsum with inner vittae distinctly narrower than pollinose portion between inner and outer vittae on presutural region; outer vertical seta short but distinct in ♂ 3
3. ♂ 4th and 5th abdominal terga broadly reddish yellow, darkened on posterior 1/3 of 4th tergum and 1/2 of 5th; bend of wing vein M_1 close to wing margin, vein M_1 from discal crossvein to its bend about 2× distance between the bend and wing margin *orientalis* (holotype ♂ in BPBM, examined): Vietnam
- Posterior 1/2 of 4th abdominal tergum and entire 5th brown black in ♂;

wing vein M_1 from discal crossvein to its bend at most $1.4 \times$ distance between the bend and wing margin..... *meridionalis*
 (holotype ♂ in BLKU, examined): Japan (Kyushu), China (Taiwan)

***Feriola angustifrons* sp. nov.**

(Figs. 44–47)

Closely resembling *F. longicornis* MESNIL, but differing as follows:

♂. Head rather grayish pollinose, upper parafrontal pale brownish; antenna brown-black, 2nd segment rarely slightly paler; palpus dark brown, median portion sometimes weakly pale brown; vertex $0.15\text{--}0.17$ of head width; interfrontal area wider, $1.6\text{--}1.7 \times$ as wide as parafrontal at middle; proboscis distinctly longer than head height. $2+1$ acr. Legs with coxae and femora brown-black, trochanters reddish yellow, median ventral portion of hind femur sometimes narrowly reddish

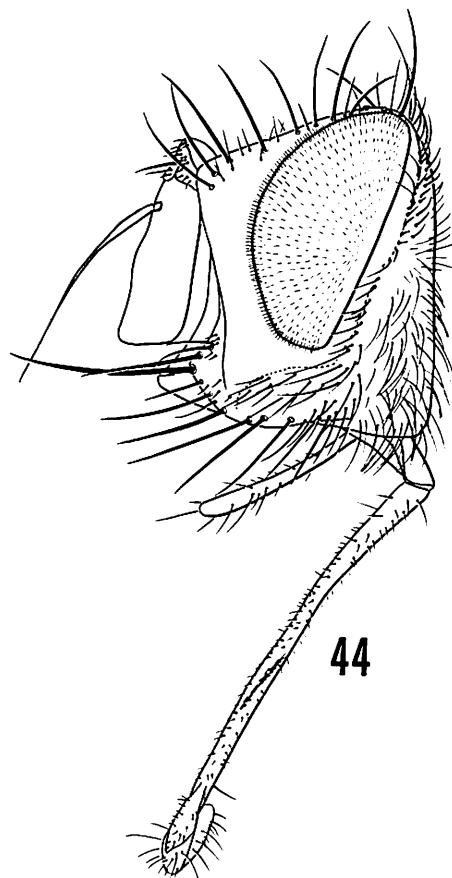


Fig. 44. *Feriola angustifrons* male head in profile.

yellow, tibiae reddish yellow except dark basal and apical portions; tarsi brown-black, pulvilli dull whitish yellow; abdomen broadly brown-black, posteroventral portion of syntergum 1+2, lateral and ventral portion of 3rd tergum and narrow anterolateral portion of 4th reddish yellow, evenly and densely tessellate white pollinose on dorsum, thinly whitish pollinose on venter; pollinosity rather thin on posterodorsal portion of 3rd and 4th terga. ♂ genitalia: Cerci fused with each other, longitudinal suture indistinct, in dorsal view narrowed from basal 1/2 to apex, in lateral view curved ventrally near apex; surstyli in lateral view broad and short; pregonite long; distiphallus with narrow dentate ventral plate, rather broad dorsal plate and small apical one (hypandrial structure is illustrated by SHIMA (1983) as *Feriola* sp.).

♀. Differing from ♂ as follows: Vertex about 0.27 of head width; interfrontal area narrower than parafrontal at middle; inner vertical setae decussate, as long as eye height; outer vertical seta 2/3 as long as inner one; 1 outwardly directed prevertical seta, 3/4 as long as outer vertical seta; 2 reclinate orbital setae, posterior seta fine, anterior seta subequal in length to prevertical seta; 2 proclinate orbital setae, anterior seta slightly longer than outer vertical seta, posterior seta subequal in length to anterior reclinate orbital seta; 4–6 frontal setae; 3rd antennal segment at most 3.6–3.7× as long as 2nd, about 2.8× as long as wide; legs with femora reddish on median 1/3; mid tibia with a strong *v* seta; claws and pulvilli very short; abdomen entirely brown-black, densely tessellate grayish yellow-white pollinose.

Body length, 6.3–7.5 mm; wing length, 5.4–6.4 mm.

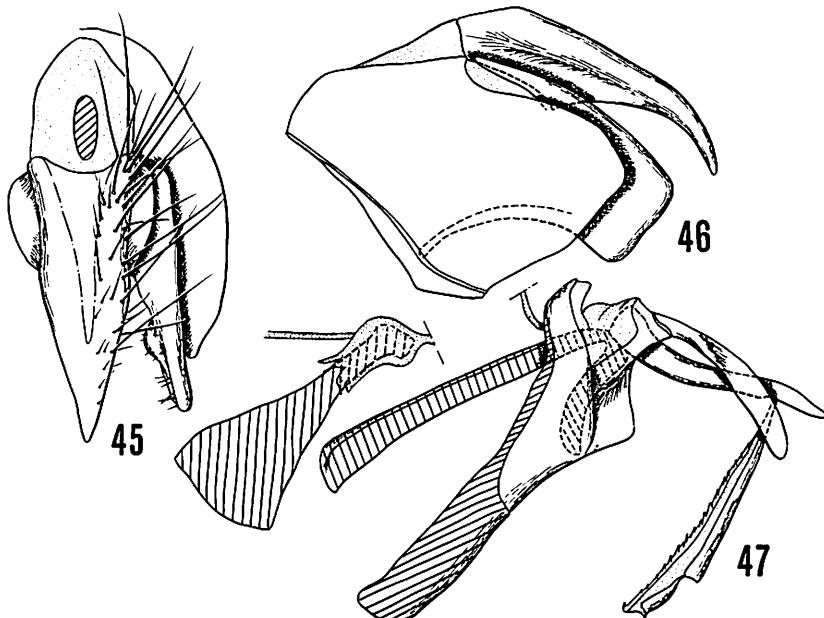
Distribution. China (Taiwan).

Holotype, ♂, CHINA, Taiwan, Chia-i Hsien, Ali-shan, Chun-shan, 9. vii. 1985, H. SHIMA (NSM).

Paratypes. CHINA: Taiwan—1♂, Nantou Hsien, Tsuifeng, 20. v. 1970, K. NISHIDA; 2♂♂, Chia-i Hsien, Tsu-ching to Tatachia-ampu, 6. vii. 1985, H. M. LIN; 1♀, Chia-i Hsien, Mt. Yui Shan (2700–3500 m), 6–7. vii. 1985, S. SHINONAGA; 2♂♂, same data as holotype (all in BLKU); 2♂♂, same locality as holotype, 9–10. vii. 1985, S. SHINONAGA (BLKU, KMNHIR100, 304); 2♂♂, Nantou Hsien, Tongpu, 5–10. vii. 1977, H. TAKIZAWA (EIHU).

Remarks. The genus *Feriola* is erected by MESNIL (1957) as monotypic containing the Burmese species *longicornis*. RICHTER (1986) added the second species *insularis* to the genus from Sakhalin. Here is described the third species from Taiwan and the geographical distribution of this genus is now expanded from south to northeastern Asia. These species are apparently different from each other in general appearance as well as in genitalia. The phylogenetic position of the genus is briefly discussed by SHIMA (1987). All the known species may be keyed out as follows:

1. Palpus yellow; femora and tibiae entirely yellowish; vertex about 0.26 of head width in ♂, 0.33 in ♀; 1st and 2nd antennal segments reddish



Figs. 45–47. *Feriola angustifrons*: 45, epandrium, cerci and surstyli in dorsal view; 46, same in lateral view; 47, hypandrium, pre- and postgonite and aedeagus in lateral view (ejaculatory apodeme in dorsal view).

- yellow (after RICHTER, 1986)..... *insularis*: Sakhalin
- Palpus dark brown; femora at least partly darkened; vertex less than 1/4 of head width in ♂ 2
- 2. Vertex 0.15–0.17 of head width in ♂, about 0.27 in ♀; femora mostly brown-black, at most hind femur reddish yellow on median 1/5 in ♂, all femora reddish on median 1/3 in ♀; abdomen broadly dark brown in ♂, entirely so in ♀, rather densely and evenly tessellate white to grayish yellow-white pollinose on dorsum *angustifrons*: China (Taiwan)
- Vertex about 0.21 of head width in ♂; ♂ femora broadly reddish yellow, darkened on apical and basal 1/3 on fore femur, 1/5 of mid and hind femora; abdomen broadly pale reddish yellow in ♂, rather thinly whitish pollinose on dorsum of anterior 2/3 of each 4th to 5th terga (♀ unknown) *longicornis*: Burma (holotype ♂ in ZMH, examined)

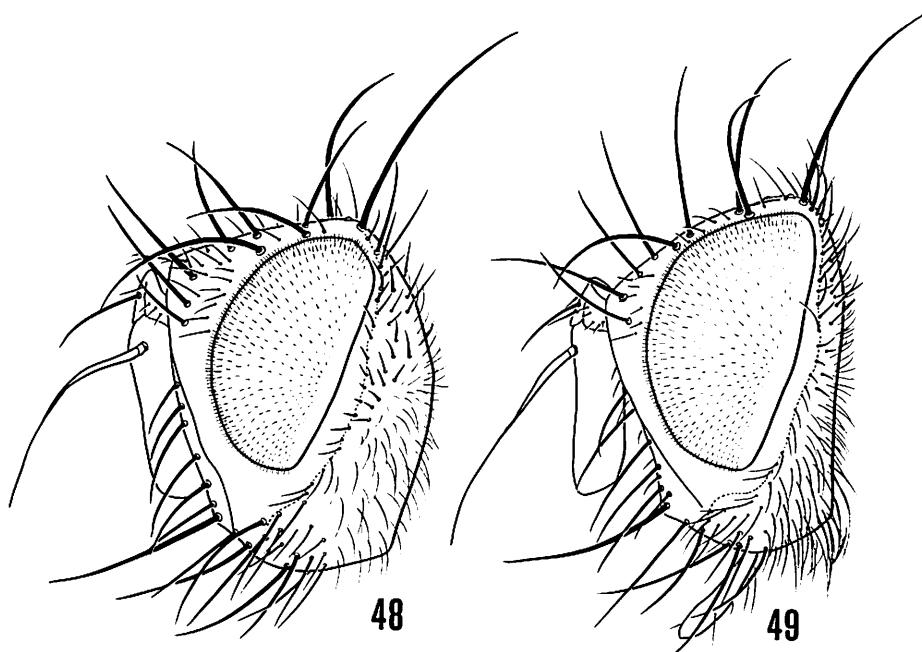
***Campylocheta magnicauda* sp. nov.**

(Figs. 48, 50–55)

- ♂. Head grayish white pollinose, parafrontal grayish; interfrontal area brown,

grayish yellow, somewhat coppery, pollinose in frontal view; antenna and arista brown; palpus reddish yellow, slightly darkened at base. Vertex 0.39–0.42 of head width; interfrontal area about 2× as wide as parafrontal at middle; parafacial weakly narrowed below, about 1/2 as wide as 3rd antennal segment at middle height; gena 0.43–0.45 of eye height; occiput well bulged. Inner vertical seta distinctly longer than eye height; ocellar seta about 2/3 as long as inner vertical seta; 1 rather short reclinate prevertical seta; 2 proclinate orbital setae, anterior seta stronger than posterior one and slightly shorter than ocellar seta; 5–7 frontal setae, lowest seta nearly level with base of 3rd antennal segment; parafrontal rather sparsely fine-haired; parafacial bare; genal dilation with several strong hairs; upper occiput with 2–3 irregular rows of black hairs. Antenna falling short of lower margin of face by about 1/2 length of 2nd segment; 3rd segment about 5× as long as 2nd. Arista thickened on basal 1/4. Palpus nearly cylindrical, about 2/3 as long as 3rd antennal segment.

Thorax rather thinly grayish pollinose on dorsum, rather densely grayish white pollinose on pleura; longitudinal vittae indistinct on dorsum. 4 humerales, 3 basal setae arranged in a straight line; 2–3+2–3 *acr*, posterior *prst* seta and middle *post* seta sometimes absent; 3+3 *dc*; 0+3 *ia*; *pra* fine but distinct; 2+1 *stpl*, lowest seta sometimes very fine; mediotergite bare; basal scutellar seta subequal in length to



Figs. 48–49. Head in profile: 48, *Campylocheta magnicauda* ♂; 49, *Elfriedella flavipilosa* ♀ (holotype).

apical seta and about $2\times$ as long as scutellum; subapical scutellar seta about $2.5\times$ as long as scutellum; distance between bases of 2 subapical scutellar setae about $2\times$ that between basal and subapical setae of same side; preapical scutellar seta fine, slightly shorter than scutellum.

Wing hyaline, weakly tinged with pale brown along veins; tegula black; basicosta yellow; calypter white, slightly pale brownish tinged. Second costal sector about 1/4 of 3rd; vein R_1 usually bare (in 1 specimen examined R_1 with a fine setula near apex on left wing); vein M_1 from r-m crossvein to discal crossvein subequal in length to that from discal crossvein to its bend, the latter $1.2\text{--}1.3\times$ as long as that from the bend to apex of M_1 and about $1.5\times$ distance between the bend and wing margin; last section of vein M_3 $1.6\text{--}1.8\times$ as long as discal crossvein.

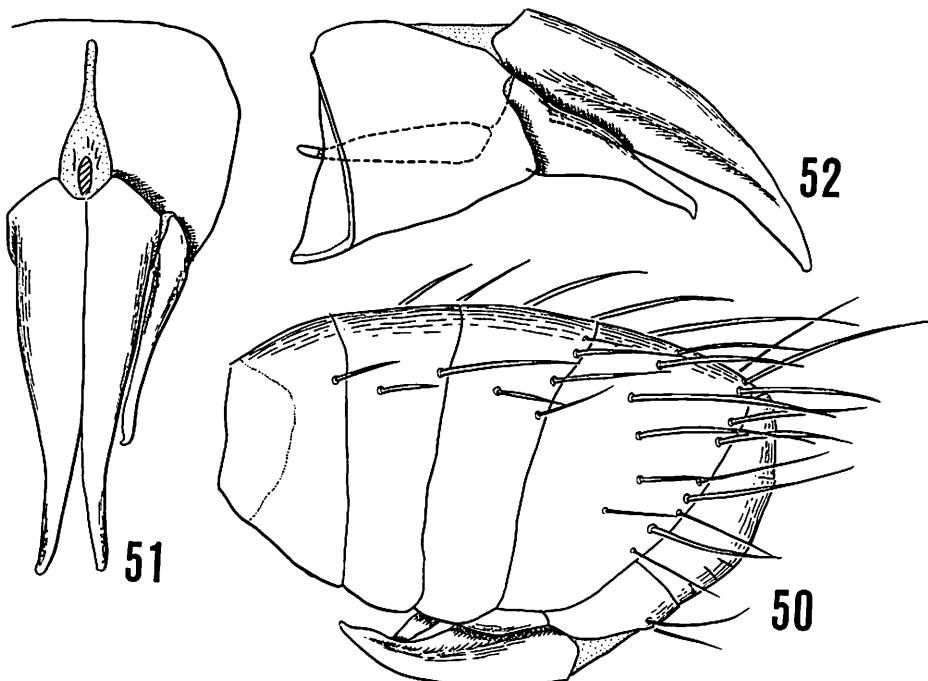
Legs black, tibiae reddish yellow. Fore tibia with a row of *ad* and 2 *p* setae; mid tibia with 2 strong *ad*, 2 *pd* and 1 *v* setae, 1–2 additional short setae present on upper and lower portions of strong *ad* setae; hind tibia with a row of *ad*, 3–4 *pd*, 3 *v*, and 3 subequally long preapical *d* setae. Claws and pulvilli long, subequal to 5th tarsomere.

Abdomen evenly and rather thinly pale yellowish gray pollinose, without shifting appearance. Syntergum 1+2 excavated mid-dorsally to its posterior margin; pregenital segments and genitalia very large, and abdomen rather high and compressed laterally. Second tergum with 1–2 lateral marginal setae, without median marginal seta; 3rd tergum with 2 median discal, 1–2 lateral discal, 2 median marginal and 2–3 lateral marginal setae; 4th tergum with 2 median discal, 1–2 lateral discal, 2 median marginal and 3–4 lateral marginal setae; 5th tergum with regular rows of discal and marginal setae.

♂ genitalia: 6th tergum entirely fused with synsternum 7+8 and suture between them obliterated; cerci very large, apex reaching to posteroventral margin of 2nd tergum, evenly tapering to apex in lateral view, in dorsal view apical 1/3 separated from each other; surstyli narrow in lateral view, apex reaching nearly apical 1/3 of cerci; pregonite forming a long tube, mid dorsal portion longitudinally membranous; postgonite short and rather quadrate in shape, anteroventral margin weakly dentate; basiphallus shorter than basal plate of distiphallus, weakly ridged on mid dorsal longitudinal portion; basal plate of distiphallus with many spinules on dorsal surface, each one pair of short and long tubes extending from distal portion, short tube with spinules.

♀. Differing from ♂ as follows: Vertex about 0.31 of head width; interfrontal area only slightly wider than parafrontal; parafacial about 3/5 as wide as 3rd antennal segment; antenna short and narrow, falling short of lower margin of face by about length of 2nd segment, 3rd segment about $3.5\times$ as long as 2nd; palpus weakly clavate apically; claws and pulvilli short, shorter than 5th tarsomere; abdomen rather conical, abdominal setae stronger than in ♂.

Body length, 5.1–5.7 mm; wing length, 4.7–5.5 mm.



Figs. 50–52. *Campylocheta magnicauda*: 50, ♂ abdomen in lateral view; 51, epandrium, cerci and surstyli in dorsal view; 52, same in lateral view.

Distribution. China (Taiwan).

Holotype ♂, CHINA, Taiwan, Tsuiseng, 29. v. 1972, R. KANO (BLKU).

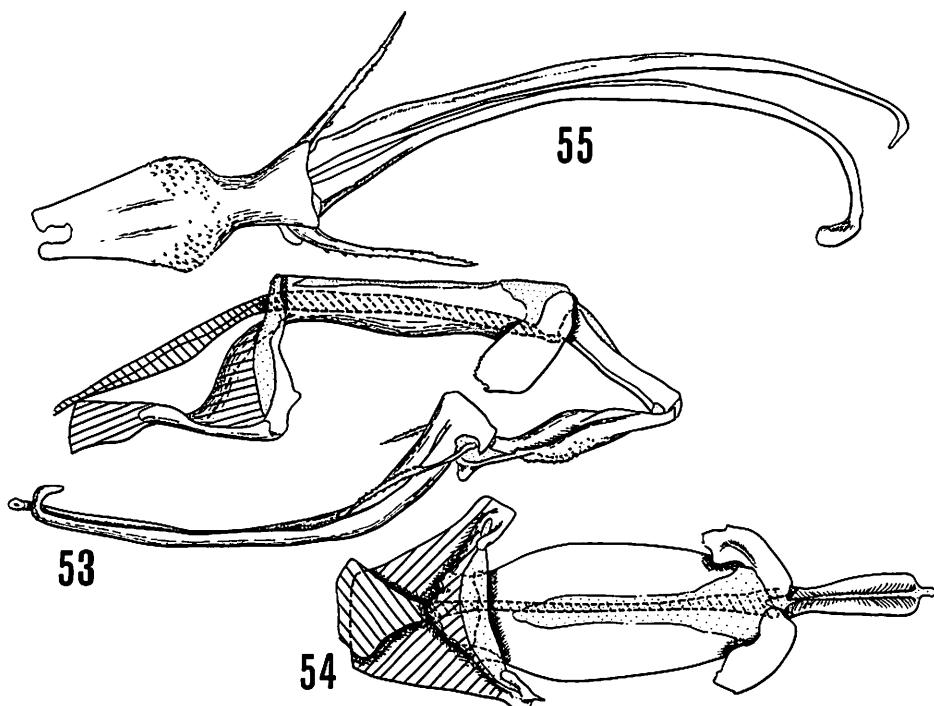
Paratypes: CHINA: Taiwan- 3♂♂1♀, same data as holotype (2♂♂1♀ in BLKU, 1♂ in KMNHIR100, 305).

Remarks. Among the Old World species of *Campylocheta*, this is the first species to be known having the proclinate orbital setae in the male, although some undescribed species from New Guinea have such setae. This species is very characteristic in its very large male genitalia.

Elfriedella flavipliosa sp. nov.

(Fig. 49)

♀. Resembling *E. amoena* MESNIL, but differing as follows: Gena about 0.37 of eye height; outer vertical seta indistinct; lower occiput with reddish yellow pile; 3rd antennal segment about 6× as long as 2nd; 1–2 proclinate orbital setae, posterior seta very fine; thorax rather densely bluish gray pollinose, dorsum with rather



Figs. 53–55. *Campylocheta magnicauda*: 53, hypandrium, pre- and postgonite and aedeagus in lateral view; 54, same in dorsal view; 55, distiphallus in dorsal view.

distinct 4 black longitudinal vittae on presutural region when viewed from behind, inner two vittae fused with each other and outer ones rather indistinct behind transverse suture; pollinosity on sternopleuron, hypopleuron and lower portion of mesopleuron pale yellowish; most hairs on pteropleuron and sternopleuron and some of hypopleuron yellowish; base of wing and calypter yellowish brown; wing vein R_1 bare; setulae on vein R_{4+5} not extending beyond r-m crossvein; discal crossvein situated at about posterior 1/3 of vein M_1 between r-m crossvein and bend of M_1 ; coxae with reddish yellow setae and hairs; preapical pd seta on hind tibia fine but distinct; abdomen densely bluish gray pollinose; venter with dense golden yellow hairs.

♂. Unknown.

Body length, ca. 5.5 mm; wing length, ca. 5.3 mm.

Distribution. Nepal.

Holotype ♀, N. E. NEPAL, Taplejung, Walunchung Gola (3350 m), 14. vi. 1962, T. YASUDA (ELUO).

Remarks. This species is apparently very closely allied to the Japanese species *E. amoena* MESNIL, 1957, which has hitherto been known as the only species belonging to

this genus, but it is more specialized than the latter in having reddish or golden yellow hairs on the coxae and abdominal venter. These two species may be easily distinguished from each other as follows:

1. Wing vein R_1 setulose dorsally on its apical 1/3; pale yellowish hairs on abdomen confined on 1st sternum and venter of syntergum 1+2; hind tibia with 2 preapical d setae
....*amoena* (holotype ♂ in CNC, examined): Japan (Hokkaido, Honshu)
- Wing vein R_1 bare; abdominal venter, coxae and basal and ventral portions of femora with dense golden yellow hairs; hind tibia with 3 preapical d setae, although pd seta rather fine*flavipilosa*: Nepal

Takanomyia frontalis sp. nov.

(Figs. 56-58)

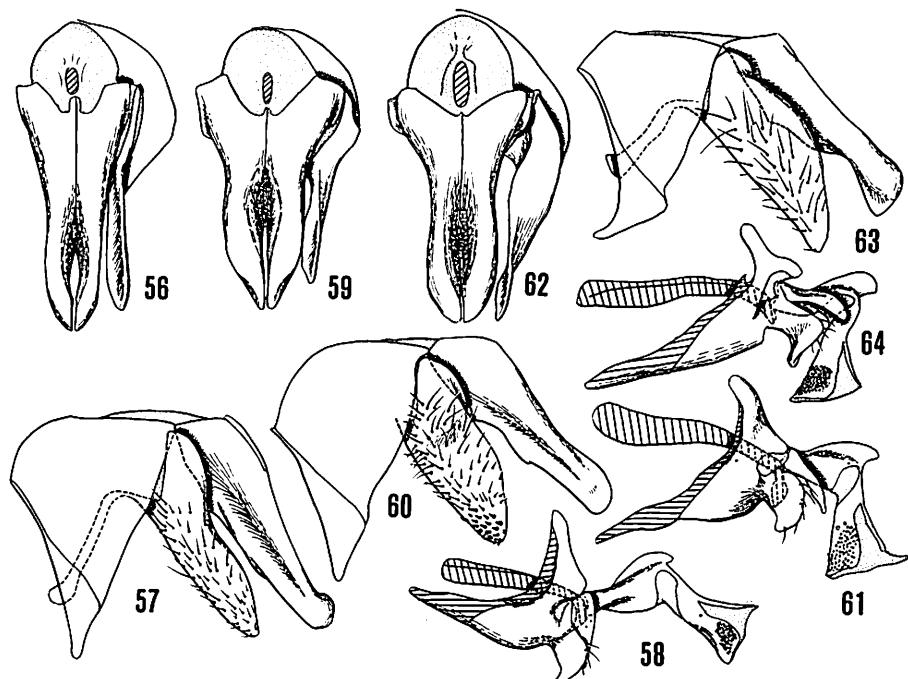
♂. Head grayish yellow pollinose; antenna with 2nd segment broadly reddish yellow; palpus reddish yellow. Vertex narrow, about 0.2 of head width; interfrontal area about 2/3 as wide as parafrontal at middle; parafacial about 1.5× wide as 3rd antennal segment at middle height; gena 0.31-0.32 of eye height. Outer vertical seta undeveloped; parafrontal densely fine-haired, several hairs descending below lowest frontal seta; gena with dense short fine hairs. Antenna short and narrow; 3rd segment about 3.5× as long as 2nd, about 4× as long as wide. Palpus slightly longer than 3rd antennal segment. Eye rather densely short-haired.

Thorax black in ground color, scutellum dark brown, rather densely grayish white pollinose; dorsum with 4 narrow longitudinal vittae. First *post ia* seta fine; distance between bases of 2 subapical scutellar setae subequal to that between basal and subapical setae of same side.

Wing tinged well with brown on basal 1/2 from costa to vein M_3 . Second costal sector about 2/3 as long as 3rd and slightly longer than 4th; vein M_1 from discal crossvein to its bend about 1/2 as long as that from the bend to apex of M_1 , and subequal to distance between the bend and wing margin.

Legs black. Hind tibia with a closely set row of *ad* setae.

Abdomen black in ground color, posterolateral portion of 2nd tergum, lateral portion of 3rd and anterolateral portion of 4th narrowly reddish brown; dorsum rather thinly whitish pollinose on 3rd tergum, and rather densely so on 4th and 5th, posterior 1/3-2/5 portion transversely black on each tergum; a narrow mid dorsal longitudinal vitta distinct on 3rd to 5th terga; venter rather thinly and evenly whitish pollinose. Second tergum with 2 median marginal and 1 lateral marginal setae; 3rd tergum with 2-4 median marginal and 2 lateral marginal setae; 4th and 5th terga each with a row of marginal setae; several strong bristle-like hairs present on submedian portion close to hind margin of 3rd and 4th terga; 5th tergum with many



Figs. 56–58. *Takanomyia frontalis*; Figs. 59–61. *T. basalis* (holotype); Figs. 62–64. *T. rava*: 56, 59, 62, epandrium, cerci and surstyli in dorsal view; 57, 60, 63, same in lateral view; 58, 61, 64, hypandrium, pre- and postgonite and aedeagus in lateral view.

strong setae on discal portion.

δ genitalia: Dorsal arms of hypandrium long, narrowly separated from each other; cerci in dorsal view rather slender, narrowly separated from each other on apical 1/3 portion, in lateral view weakly narrowed to dorsally swollen apex; surstyli in lateral view evenly narrowed to apex, with rather dense strong hairs; epiphallus small.

φ . Unknown.

Body length, 10.2–11.3 mm; wing length, 9.8–10.1 mm.

Distribution. Nepal.

Holotype δ , NEPAL, Phulchoki (2762 m), 18–21. ix. 1987, M. LIMBU (BLKU).

Paratype: NEPAL: 1 δ , same data as holotype (KMNHIR100, 306).

Remarks. This species is very characteristic in having narrow vertex and short and slender 3rd antennal segment.

Takanomyia basalis sp. nov.

(Figs. 59–61)

♂. Closely resembling the preceding species, but differing as follows: Head densely yellowish pollinose; vertex wider, about 0.27 of head width; interfrontal area at most 1/2 as wide as parafacial at middle; parafacial about 2× as wide as 3rd antennal segment at middle height; gena about 0.45 of eye height; parafacial hairs descending below lowest frontal seta to upper 2/3 of parafacial; facial ridge with rather weak setae on lower 1/2–2/3; antenna long, 3rd segment about 5.5× as long as 2nd, about 5× as long as wide; palpus slightly longer than 2/3 length of 3rd antennal segment; thorax with pale yellowish gray pollinose; scutellum broadly reddish brown; first *post ia* seta strong; wing markedly dark brownish tinged on basal 1/2 from costa to vein M_3 ; 2nd costal sector of wing about 4/5 as long as 3rd and 1.5× as long as 4th; abdomen only faintly and very narrowly reddish on side of 3rd tergum; abdominal dorsum rather densely pale yellowish gray pollinose on anterior 1/3 of 3rd tergum, 1/2 of 4th and 2/3 of 5th, the pollinosity becoming thinner and diffusing posteriorly on each tergum. ♂ genitalia: Dorsal arms of hypandrium rather short, well separated from each other; cerci in dorsal view wide, separated from each other on apical 1/3 portion, in lateral view wide, apical portion rounded; surstyli in lateral view wide, tapering to blunt apex at apical 1/2, with dense and rather short strong hairs; epiphallus short.

♀. Unknown.

Body length, ca. 11.5 mm; wing length, ca. 10.3 mm.

Distribution. Nepal.

Holotype ♂, NEPAL, Phulchoki (2762 m), 18–21. ix. 1987, M. LIMBU (BLKU).

Remarks. This species may be easily distinguished from others by the markedly dark brownish tinged wing base.

Takanomyia rava sp. nov.

(Figs. 62–64)

Resembling *T. scutellata* MESNIL, but differing as follows:

♂. Eye sparsely short-haired; head pale yellowish gray pollinose, upper parafacial darkened; vertex 0.27–0.28 of head width; gena wide, 0.4–0.42 of eye height; 2nd antennal segment reddish yellow, darkened medially, 3rd segment 5–5.5× as long as 2nd segment and 3.5–4× as long as wide; arista thickened on basal 1/3; genal dilation with finer and shorter hairs than in *scutellata*; thorax densely pale yellowish gray pollinose on dorsum, thinly so on pleura; distance between bases of 2 subapical scutellar setae slightly less than that between basal and subapical setae of same side; wing vein M_1 from discal crossvein to its bend about 1/2 as long as that from the bend to apex of M_1 and subequal to distance between the bend and wing

margin; tibiae yellow, darkened basally; abdominal dorsum densely grayish white pollinose on anterior 1/3 of 3rd tergum, 3/5–2/3 of 4th and 1/2 of 5th, venter evenly and rather thinly whitish pollinose; intermediate abdominal terga without discal setae; hairs on posterior 1/2–1/3 of each 3rd and 4th terga strong and suberect bristle-like. ♂ genitalia: Dorsal arms of hypandrium rather short, narrowly separated from each other; cerci in dorsal view rather broad, weakly widened from basal 1/3 to apex, in lateral view with apical portion weakly swollen ventrally; surstyli in lateral view broad, tapering to apex, with dense long hairs; epiphallus broad.

♀. Differing from ♂ as follows: Vertex about 0.33 of head width; outer vertical seta stong; 2 subequally long proclinate orbital setae, which are subequal in length to anterior reclinate orbital seta; 2nd antennal segment and base of 3rd reddish yellow; 3rd antennal segment about 3.5× as long as 2nd segment, about 4× as long as wide; arista thickened on basal 1/4; parafacial wider than 3rd antennal segment at middle height; distance between bases of 2 subapical scutellar setae distinctly less than that between basal and subapical setae of same side; claws and pulvilli short; abdominal dorsum thinner whitish pollinose on anterior 2/3 of 3rd tergum, 3/4 of 4th and 4/5 of 5th, posterior margin of pollinose portion diffusing.

Body length, 9.5–11.7 mm; wing length, 8.3–9.7 mm.

Distribution. Nepal.

Holotype ♀, NEPAL, Basantapur (2300 m), 27°06'N, 87°23'E—27°08'N, 87°26'E, 29. iv. 1972, H. SHIMA (BLKU).

Paratypes: NEPAL: 1 ♂, Basantapur (2300 m), 27°07'N, 87°24'E, 28. iv. 1972, Malaise trap (KMNHIR100, 307); 2 ♂♂ 1 ♀, Phulchoki (2762 m), 18–21. ix. 1987, M. LIMBU (BLKU).

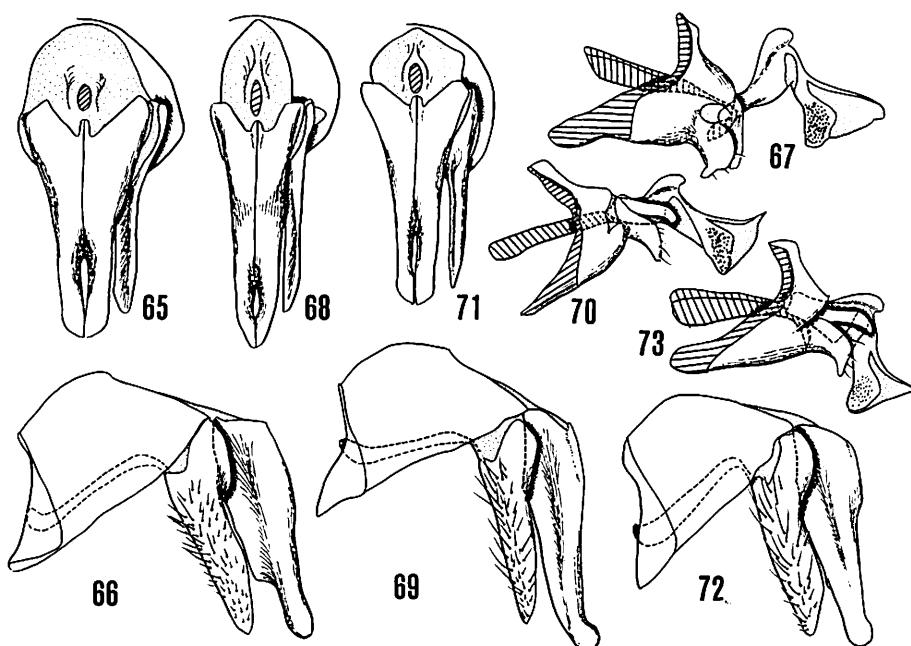
Remarks. This species is peculiar in its yellowish tibiae and densely pale grayish yellow pollinose thoracic dorsum.

Takanomyia antennalis sp. nov.

(Figs. 65–67, 74)

Very closely resembling *T. scutellata* MESNIL, but differing as follows:

♂. Head grayish or pale yellowish gray pollinose; vertex wide, 0.32–0.33 of head width; outer vertical seta short but distinct; gena 0.43–0.45 of eye height; genal dilation with rather sparse hairs; parafacial about 1.5× as wide as 3rd antennal segment at middle height; antenna falling short of lower margin on face by about length of 2nd antennal segment, 3rd segment 5–5.5× as long as 2nd segment; palpus about 4/5 as long as 3rd antennal segment; abdominal dorsum more thinly grayish white pollinose than in *scutellata*; intermediate abdominal terga with 2–6 strong irregularly set median discal setae. ♂ genitalia: Dorsal arms of hypandrium long, narrowly fused with each other on anterior portion; cerci in dorsal view broad at base



Figs. 65–67. *Takanomyia antennalis*: Figs. 68–70. *T. takagii*: Figs. 71–73. *T. scutellata*: 65, 68, 71, epandrium, cerci and surstyli in dorsal view; 66, 69, 72, same in lateral view; 67, 70, 73, hypandrium, pre- and postgonite and aedeagus in lateral view.

and distinctly narrowed to basal 1/2, rather well separated from each other at apical 1/3, converging apically, in lateral view distinctly narrowed at apical 1/3; surstyli shorter than cerci, in lateral view narrow and weakly tapering to apex, with dense short hairs.

♀. Differing from ♂ as follows: Vertex 0.32–0.34 of head width; outer vertical and 2 proclinate orbital setae developed; 3rd antennal segment about 4× as long as 2nd segment, and subequal to palpus; abdominal setae stronger than in ♂.

Body length, 7.6–9.6 mm; wing length, 6.9–8.5 mm.

Distribution. Nepal.

Holotype ♂, E. NEPAL, Basantapur (2300 m), 27°06'N, 87°23'E—27°08'N, 87°26'E, 10. v. 1972, H. SHIMA (BLKU).

Paratypes: NEPAL: 1♂, same data as holotype (BLKU); 1♂1♀, same as preceding, except date 1. v. 1972 (1♂ in BLKU, 1♀ in KMNHIR100, 308); 5♂♂4♀♀, Phulchoki (2762 m), 18–21 ix. 1987, M. LIMBU (4♂♂4♀♀ in BLKU, 1♂ in KMNHIR100, 309).

Takanomyia takagii sp. nov.

(Figs. 68–70)

♂. Very closely resembling the preceding species, and in general appearance only differing as follows: Head more densely yellowish gray pollinose; vertex about 0.3 of head width; outer vertical seta indistinct; parafacial at most about 1.2× as wide as 3rd antennal segment at middle height; antenna falling short of lower margin of face by about 3/4 length of 2nd antennal segment. ♂ genitalia distinctly differing from those of *antennalis* or *scutellata* as follows: Dorsal arms of hypandrium narrowly fused with each other at anterior portion; cerci slender, in dorsal view narrowly separated from each other on apical 1/4 portion and apices converging each other, in lateral view apex well curved dorsally; surstylius distinctly shorter than cerci, in lateral view straight and slender, evenly narrowed to apex, with dense long hairs.

♀. Unknown.

Body length, ca. 10.2 mm; wing length, ca. 9.3 mm.

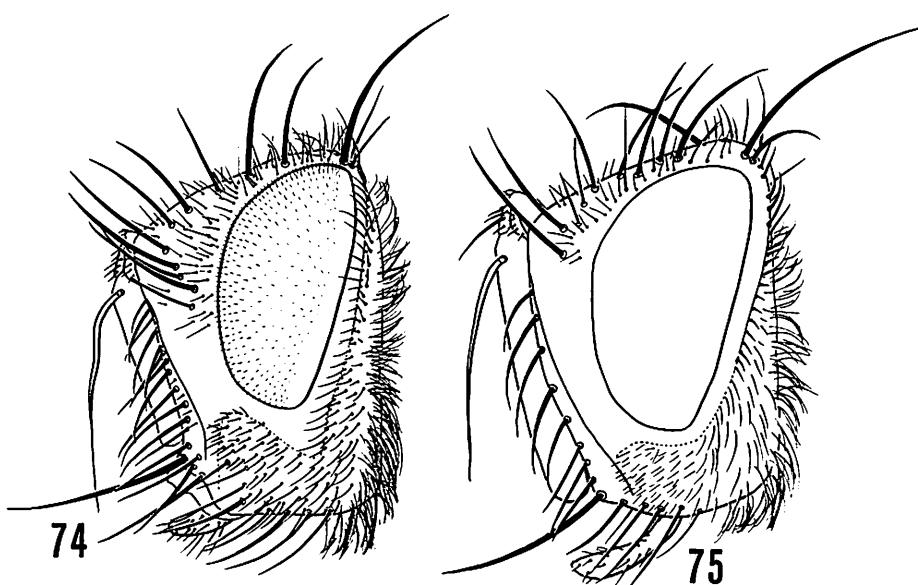
Distribution. Nepal.

Holotype ♂, NEPAL, Bagmati, Sheopani (2600 m), 28. viii. 1975, S. TAKAGI (EIHU).

Paratype: NEPAL: 1 ♂, same data as holotype (EIHU).

Remarks. The genus *Takanomyia* was erected by MESNIL (1957) as monotypic comprising a new species, *scutellata*, from Japan. MESNIL & PSCHORN-WALCHER (1968) added India as a locality of this species and CROSSKEY (1974) listed India (Assam) and Nepal as additional localities. I have examined *Takanomyia* specimens from Nepal as well as those from Japan and found that there are five closely allied species in Nepal. One of them, *rava*, is distinctive and may be easily distinguished from others, but others closely resemble each other and also very closely so *scutellata*. *Takanomyia* has now become known from 6 species from east Asia and they may be distinguished from each other with the following key. Indian or Nepalese specimens treated by MESNIL & PSCHORN-WALCHER and by CROSSKEY need confirmation. Hosts of *Takanomyia* species have hitherto been unknown.

1. Tibiae yellowish; eye sparsely short-haired; head and thorax densely pale yellowish gray pollinose; intermediate abdominal terga without distinct median discal setae *rava*: Nepal
- Tibiae dark brown or black; eye rather densely haired; head densely yellowish, grayish yellow or grayish pollinose and thorax grayish white or grayish yellow pollinose 2
2. Wing markedly tinged with brown at base; intermediate abdominal terga without distinct discal setae, at most with strong erect bristle-like hairs 3
- Wing almost entirely hyaline; intermediate abdominal terga with distinct discal setae 4



Figs. 74–75. Male head in profile: 74, *Takanomyia antennalis*; 75, *Frontina femorata*.

- 3. Vertex narrow, at most 1/5 of head width in ♂; antenna short and narrow, 3rd segment at most 3.5× as long as 2nd in ♂ *frontalis*: Nepal
- Vertex wider, slightly more than 1/4 of head width in ♂; 3rd antennal segment about 5.5× as long as 2nd in ♂ *basalis*: Nepal
- 4. Vertex about 1/4 of head width in ♂, 3/10 in ♀; 3rd antennal segment 4–4.5× as long as 2nd segment in ♂, 3–3.5× in ♀; ♂ intermediate abdominal terga with short irregularly set median discal setae.....
.... *scutellata* (holotype ♀ in CNC, examined): Japan (Honshu, Kyushu)
- Vertex about 3/10 of head width in ♂, 1/3 in ♀ (♀ *takagii* unknown); 3rd antennal segment 5–5.5× as long as 2nd segment in ♂, about 4× in ♀; ♂ intermediate abdominal terga with strong irregularly set median discal setae 5
- 5. Head grayish or pale yellowish gray pollinose; ♂ with outer vertical seta; ♂ cerci narrowed at apical 1/3 in lateral view, apex at most weakly swollen; surstyli with dense short hairs *antennalis*: Nepal
- Head densely yellowish gray pollinose; ♂ without outer vertical seta; ♂ cerci slender, apical portion distinctly curved dorsally; surstyli slender, with long hairs *takagii*: Nepal

Frontina femorata sp. nov.

(Figs. 75–78)

Closely resembling *F. laeta* (MEIGEN), but differing as follows:

♂. Vertex 0.42–0.44 of head width; gena 0.38–0.42 of eye height; parafacial about 1.5× as wide as 3rd antennal segment at middle height; 3rd antennal segment broadly dark brown, at most narrowly reddish yellow near base, about 10× as long as 2nd segment, 5.2–5.5× as long as wide; palpus about 1/2 as long as 3rd antennal segment; legs with femora brown-black; tibiae reddish yellow, darkened basally and apically; hind tibia with 3 preapical *d* setae, of which posterodorsal seta is about 2/3 as long as mid dorsal one; abdominal dorsum with distinct transverse black band on posterior 1/3 of 4th tergum and 2/5 of 5th. ♂ genitalia: Dorsal arms of hypandrium rather long, well separated from each other; pregonite small; postgonite short; cerci in dorsal view rather narrow, separated from each other on apical 3/7, inner margin of each cercus weakly dentate, in lateral view well curved dorsally on apical portion; surstyli in lateral view constricted near middle, apex curved dorsally.

♀. Very closely resembling ♂, but differing as follows: 2 proclinate orbital setae present; 3rd antennal segment more broadly reddish, about 7× as long as 2nd segment; palpus about 4/7 as long as 3rd antennal segment; hind tibia with preapical *pd* seta stronger than in ♂; abdominal dorsum more densely pollinose.

Body length, 7.7–10.3 mm; wing length, 6.3–7.4 mm.

Distribution. Japan (Hokkaido, Honshu).

Holotype, ♂, JAPAN, Hokkaiko, Mt. Rausu (200–800 m), 3. viii. 1967, H. SHIMA (BLKU).

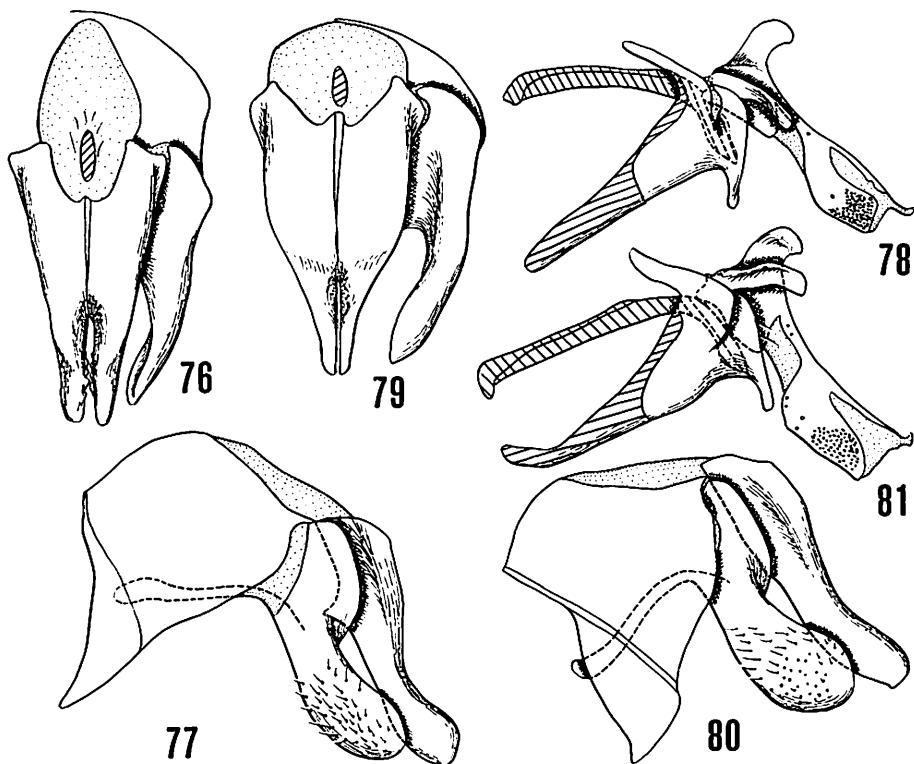
Paratypes: JAPAN: Hokkaido- 2♂♂, same data as holotype (BLKU, KMNHIR100, 310); Honshu- 3♀♀, Aomori, Asamushi, 18. x. 1980, S. FUKUSHI (2♀♀ in BLKU, 1♀ in KMNHIR100, 311); 1♀, Miyagi, Mt. Kurioka, 29. vii. 1969, S. SHINONAGA; 2♂♂, Nagano, Mt. Asama, 17. viii. 1970, R. KANO; 1♀, same locality and collector as preceding, 21. viii. 1971 (all in BLKU).

Frontina tricolor sp. nov.

(Figs. 79–81)

Closely resembling *F. femorata*, but differing as follows:

♂. Antenna shorter and more slender, 3rd segment about 9× as long as 2nd segment and 6× as long as wide; parafacial about 2× as wide as 3rd antennal segment at middle height; wing smoky white on basal portion, ie. on entire subcostal cell and from base to level of basal crossvein, brownish on median portion from level of basal crossvein to that of discal crossvein, and hyaline apically, anterior portion more strongly tinged than posterior portion; preapical *pd* seta on hind tibia very fine, at most 1/2 as long as mid dorsal seta; abdomen more densely pale yellowish white



Figs. 76–78. *Frontina femorata*: Figs. 79–81. *F. tricolor*. 76, 79, epandrium, cerci and surstyli in dorsal view; 77, 80, same in lateral view; 78, 81, hypandrium, pre- and postgonite and aedeagus in lateral view.

pollinose, dorsum of posterior 2/5 of 4th tergum and 2/3 of 5th transversely black.
 ♂ genitalia: Resembling those of *femorata*; cerci in dorsal view strongly narrowed at apical 1/3, only weakly separated from each other on apical portion; surstyli in lateral view strongly widened apically.

♀. Closely resembling ♂, but differing as follows: Third antennal segment shorter and more slender, 7–8× as long as 2nd segment and 7–8× as long as wide; 2 proclinate orbital setae present; parafacial about 3× as wide as 3rd antennal segment at middle height; preapical *pd* seta on hind tibia slightly stronger than in ♂; dorsum of posterior 1/2 of 3rd abdominal tergum black in ground color.

Body length, 9.1–12.3 mm; wing length, 7.5–10.1 mm.

Distribution. Japan (Honshu, Kyushu).

Holotype, ♂, JAPAN, Honshu, Saitama, Mt. Buko, 23. vii. 1977, K. HARA (BLKU).

Paratypes: JAPAN: Honshu- 1♀, same data as holotype; 1♂ 6♀♀, same as

preceding, except date 24. vii. 1977; 3♀♀, same as preceding, 24. vii. 1981 (all in BLKU); 4♀♀, same as preceding, 25. vii. 1977 (2♀♀ in BLKU, 2♀♀ in KMNH IR100, 312–313): Kyushu- 1♂, Oita, Mt. Suishi, 23. v. 1963, S. SHINONAGA; 2♀♀, Kumamoto, Mt. Ichifusa (800–1300 m), 26. v. 1974, H. SHIMA (all in BLKU).

Remarks. The genus *Frontina* MEIGEN has been known from only 3 species from the Palearctic and Oriental Regions (CROSSKEY, 1976; HERTING, 1984). The genus seems to be rather diverse in East Asia and here are added 2 species to 2 hitherto known species of the genus from Japan. They closely resemble each other in the male genitalia, but may be rather easily separable by superficial characters. *Frontina laeta* has been known as a specific parasitoid of sphingid moth larvae of the genus *Smerithus* in Europe (HERTING, 1960), but hosts of the Japanese species have been unknown. The Japanese species may be distinguished as follows:

1. Legs brown-black, tibiae rarely reddish brown medially; abdomen broadly blackish in ground color, posterolateral portion of syntergum 1+2 and anterolateral portion of 3rd tergum reddish brown, dorsum evenly and rather densely tessellate whitish pollinose; thoracic dorsum with 4 broad longitudinal vittae, pollinose portion between inner and outer vittae on presutural region narrower than inner vitta; eye sparsely but distinctly short-haired (in the original description (SHIMA, 1968) the eye is wrongly stated as bare)
- *nigrotibialis* (holotype ♂ in BLKU, examined): Honshu, Kyushu
- Legs with tibiae at least reddish yellow; abdomen broadly translucent yellow or reddish yellow, mid dorsal longitudinal portion of 3rd and 4th terga, posterior portion of 4th tergum and entire 5th black, dorsum rather densely pale yellowish white pollinose on 4th and 5th terga and very thinly so on 3rd tergum; thoracic dorsum with 4 narrow longitudinal vittae; eye almost bare 2
2. Femora usually reddish yellow, at most pale brown or narrowly darkened apically; dorsum of 4th and 5th abdominal terga almost entirely pale yellowish pollinose; 3rd antennal segment about 8× as long as 2nd segment in ♂, 6.5–7× in ♀ *laeta*: Hokkaido, Honshu; Palearctic
- Femora brown-black; 4th and 5th abdominal terga each with distinct transverse black band on posterior portion; 3rd antennal segment 9–10× as long as 2nd segment in ♂, 7–8× in ♀ 3
3. Wing at most evenly and faintly tinged with pale brown; 3rd antennal segment about 10× as long as 2nd segment and 5.2–5.5× as long as wide in ♂, 7× as long as 2nd in ♀; hind tibia with distinct preapical *pd* seta ...
..... *femorata*: Honshu
- Wing tinged with smoky white at base, pale brownish medially and hyaline at apical portion; antenna slender, 3rd segment about 9× as long

as 2nd segment and 6× as long as wide in ♂, 7–8× as long as 2nd and 7–8× as long as wide in ♀; hind tibia with fine preapical *pd* seta
..... *tricolor*: Honshu, Kyushu

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References

- CROSSKEY, R. W. 1976. A taxonomic conspectus of the Tachinidae (Diptera) of the Oriental Region. *Bull. Br. Mus. nat. Hist. (Ent.), Suppl.* **26**: 357 pp.
- DEAR, J. P. & R. W. CROSSKEY. 1982. A taxonomic review of the Tachinidae (Insecta, Diptera) of the Philippines. *Stenstrupia*, **8**: 105–155.
- HERTING, B. 1960. Biologie der westpaläarktischen Raupensfliegen (Dipt. Tachinidae). *Monog. angew. Ent.* **16**: 188 pp.
- 1984. Catalogue of Palearctic Tachinidae (Diptera). *Stuttg. Beitr. Naturk.*, **A** (369): 228 pp.
- MALLOCH, J. R. 1935. Exotic Muscidae (Diptera) XXXIX (cont.). *Ann. Mag. nat. Hist.*, (10) **16**: 321–341.
- MESNIL, L. P. 1944–1975. Larvaevorinae (Tachininae). In LINDNER (ed.) "Die Fliegen der paläarktischen Region" **64g**, Stuttgart: 1435 pp.
- 1953. Nouveaux Tachinaires d'Orient (1re partie). *Bull. Annls. Soc. ent. Belg.*, **89**: 85–114.

- _____. 1957. Nouveaux Tachinaires d'Orient (Deuxième série). *Mém. Soc. r. ent. Belg.*, **28**: 1–80.
- _____. 1967. Tachinaires palearctiques inédits (Diptera). *Mushi, Fukuoka*, **41**: 37–57.
- _____. 1970. Description de nouveaux Tachinaires de l'ancien monde, et notes synonymiques. *Mushi, Fukuoka*, **44**: 89–123.
- _____. 1980. Dexiinae. In LINDNER (ed.) "Die Fliegen der paläarktischen Region" **64f**, Stuttgart: 1–52.
- _____. & H. PSCHORN-WALCHER. 1968. A preliminary list of Tachinidae (Diptera) from Japan. *Mushi, Fukuoka*, **41**: 149–174.
- _____. & H. SHIMA. 1979. New tribe, genera and species of Japanese and Oriental Tachinidae (Diptera), with note on synonymy. *Kontyû, Tokyo*, **47**: 476–486.
- RICHTER, V. A. 1986. On the fauna of tachinids (Diptera, Tachinidae) of the Far East. *Trudy -zool. Inst., Leningrad*, (146): 87–115 (in Russian).
- SHIMA, H. 1968. A new species of the genus *Frontina* MEIGEN from Kyushu, Japan. *Kontyû, Tokyo*, **36**: 355–358.
- _____. 1983. A new species of *Oxyphyllomyia* (Diptera, Tachinidae) from Nepal, with reference to the phylogenetic position of the genus. *Annot. Zool. Jpn.*, **56**: 338–350.
- _____. 1984. The genus *Paradrino* from Japan and the Indo-Australian Region (Diptera: Tachinidae). *Int. J. Ent.*, **26**: 143–156.
- _____. 1987. A revision of the genus *Dexiomimops* TOWNSEND. *Sieboldia, Fukuoka, Suppl.* : 83–96.
- TOWNSEND, C. H. T. 1927. New muscoid flies in the collection of the Deutsches Entomologisches Institut in Berlin. *Ent. Mitt.*, **16**: 277–287.
- VILLENEUVE, J. 1936. Description de deux Myodaires supérieurs. *Bull. Soc. ent. Egypt.*, **20**: 329–331.
- WOOD, D. M. 1987. Tachinidae. In McALPINE (ed.) "Manual of Nearctic Diptera" **2**, Ottawa: 1193–1269.